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COMPUTER WEEKLY

NEWS IN BRIEF

Scottish plant for Mostek?

US SEMICONDUCTOR company Mostek is expected to install itself in a manufacturing plant in Scotland by the first quarter of 1979. Though company officials in Europe, and the Scottish Development Authority both declined to comment, there is strong evidence that negotiations between the two are nearing completion.

The plant, which could employ 2,000 people, will be used to make the big sellers from Mostek's product line, according to industry sources.

DHSS upgrades

THREE ICL 1906A mainframes processing National Insurance contributions for 45 million people are to be replaced by two 2980s. The new machines are to be installed in January and August at the Department of Health and Social Security computer centre in Newcastle, and each will be backed with 15 of the new high-density ICL MT 1250 tape drives. They will also each have 3 Megabytes of main memory and 3,800 Megabytes on disc.

Gamma grows

FOLLOWING its decision to diversify into systems based on the IBM Series 1 minicomputer (CW, June 29), Gamma Associates has formed a new company, Gamma Business Machines, to market business systems using the Compudata COS/1 operating system and Cobol compiler. The company exhibited a Series 1 mini at Compec last week, and reports that it has reserved 50 machines from IBM.

Insurers say fire machine can be reclaimed

EXPERTS brought in by the insurers of the brand new dual ICL 2980 system contaminated by smoke a few weeks ago at the Swiss Bank in the City of London feel that the machine can easily be reclaimed, even though ICL has said that the damage could have serious long-term effects (CW, November 23).

The bank's insurers have agreed to pay ICL for a completely new system at a cost of about £1.4 million and are waiting for ICL to agree to some form of acceptable servicing arrangement for the contaminated system after it has been cleaned and sold by the insurers to a new user.

A spokesman for G. and E. Bradley, the firm that will carry out the cleaning of the 2960s on behalf of the insurers, told Computer Weekly that Bradley technicians had taken swabbings from various parts of the system and had found that the level of chlorides in the swabbings that could have been caused by smoke contamination was very low.

He said that ICL's attitude to the Swiss Bank system with its low level of contamination could adversely affect insurance premiums on ICL computers in the future. He added that his company had successfully reclaimed a Burroughs B700 system last year after it was seriously contaminated with smoke from a fire caused by a faulty line printer.

G. and E. Bradley, a wholly owned subsidiary of Lucas Industries, specialises in building and servicing high technology electronic equipment and has a repair and calibration department employing about 100 specialists.

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Muted approval of DPC report

MUTED approval was the reaction last week from most of the organisations concerned about privacy to the Data Protection Committee's report. Comments ranged from a lukewarm "not unreasonable" from the Institute of Data Processing Management to an enthusiastic "practical and sensible" from the Computing Services Association.

Sternest criticism came from the National Council for Civil Liberties. General Secretary Patricia Hewitt, while welcoming the report, said that she was worried that so much was left to Codes of Practice.

"The Data Protection Authority," she said, "will have to go over all that ground again [in working out Codes of Practice] and may come to different conclusions."

She also said that the lack of co-operation the committee had from the Metropolitan Police was "depressing." The committee had underestimated the threats posed by the Police National Computer and the Thames Valley "computerised gossip" system (CW, November 30), and she pointed out that there was no mention in the report of the storing of political information on the PNC.

Alan Benjamin, of the CSA, complimented the flexibility of the report's proposals, saying that that was its distinguishing feature over arrangements in other European countries, and was essential because of continual changes in technology. He was "delighted the committee has bought the concept of the 'beneficial user'," concerning itself with the use of information, not the files themselves.

Regarding the issue of registration versus licensing (the CSA feels that registration on its own would be ineffective) Benjamin thought that what the report proposed was in effect licensing, because of the codes of practice that registered users would be required to follow. This would act as "an iron fist in a velvet glove," he thought.

The IDPM, on the other hand, expressed approval that the committee had "come down firmly in favour of [registration] having seen the trap that a licence carries with it an implied approval, and the administrative burden to police a licensing system would jeopardise the possibility of actual legislation." Thus both opposing sides think that they have won over this issue.

The British Computer Society and the National Computing Centre both welcomed the report. The BCS said that "most of the questions that can arise in the areas of privacy and data protection have been identified," and added that the DPC's proposals "should be highly effective."

The NCC said that "in due course attention should also be given to non-computer based systems which could infringe privacy."

Going for goal

Former Partizan Belgrade footballer, Mladrag Dzunic, who is now technical director of the logics and computer division of Elektronska Industrija which produces the Anita range of electronic calculators, was in the UK last week to discuss the latest developments in his company's products with Alan Jarratt, managing director of Fi-Cord International, the sole UK distributors of the Anita range.

Commenting that computer and calculator technology is expanding rapidly in Yugoslavia, Dzunic said that Elektronska Industrija's factory in Nis had more than doubled its workforce and increased its turnover 50 times since it began operations in 1974.

The picture shows Jarratt (left), Dzunic (seated), and Hranislav Randjelovic (right), UK agent for Elektronska Industrija.

Logica through the £10m barrier

LOGICA revenues have this year exceeded £10 million for the first time. The group's annual results for 1978 show a total revenue of over £10 million as against £6.8 million for 1977 — a growth of 47 per cent.

Some 56 per cent of this total came from clients outside the UK, with over £1 million from contracts in the Middle East.

Memory up, prices down on 3033 and 370

MAIN memory capacity on the IBM 3033 large-scale mainframe has been doubled to 16 Megabytes, and the company has introduced markedly cheaper memories using 4K memory chips in place of the 2K chips with which the 3030 series was announced.

Memory prices on all current models of the 370 line have been cut by an average of 23 per cent.

A new model of the 3705 communications controller and an enhanced version of the NCP/ACF operating software have also been announced.

Two new configurations of the 3033 are offered, with 16 and 12 Megabytes of main memory, priced respectively at £2.49 and £2.29 million. Price of a four Megabyte 3033 remains the same, but the purchase price of the six Megabyte version is cut by 1½ per cent, and that of the eight Megabyte version by 2½ per cent. Amdahl and Itel both already offer 16 Megabyte machines at the top of their lines, and Itel has already matched IBM's price cuts.

On the 370 line, memory prices are cut by 23 per cent purchase and 13 per cent on all models apart from the 135, 145 and 155.

A new model, the 3705-III has been announced with a 10% faster memory cycle.

Double speed on Univac's new mini

KEY features of the new top-of-the-line Univac V77/800 minicomputer are a processor twice as fast as that of the existing 77/600, a 150 nanosecond cache memory and a 32-bit wide path into memory.

The machine, exclusively foreshadowed in Computer Weekly (November 23), is formally launched this week. It features new 16K-bit memory with 128K words on a board, with error detection and correction as standard. One Megaword of the new memory can be fitted into the chassis and, although it has a 600 nanosecond access time, the two-word fetch enables two words to be accessed in 750 nanoseconds, assuming a cache "miss."

The V77/800 has the full instruction set of the smaller models, with an additional four or five. Univac claims that the machine offers more power than the DEC PDP-11/70 (although an 11/74 is expected from DEC shortly), and points out that the V77/600 has outperformed the 11/70 in Fortran benchmarks.

The 800 is priced at 20% more than the 600 for a machine offering double the power.

The cache has a capacity of 512K words and is standard, whereas the optional 370 nanosecond cache on the 600 is an option.

The announcement also includes a new operating system, Summit, details of which are in Software File (page 7).

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COMPUTER WEEKLY

Number 632/3 Thursday, December 21/28, 1978 Price 18p

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Briefing

PL/I for the IBM 8100

A PL/I COMPILER for IBM's 8100 distributed processing system is understood to be under development at the company's Hursley laboratory. Cobol and Fortran are the only high-level languages which IBM has so far announced for the 8100 (CW, October 5).

IBM Hursley is known as a centre of PL/I expertise within the company.

Inmos centre

NEB SEMICONDUCTOR fledgling, Inmos, is still hoping to announce officially before Christmas, the location of its technology centre, although earlier this week UK director Iann Barron was unable to confirm that it was to be in Bristol after all. Once it has been announced, selection will start of a site for the first manufacturing plant, which should be announced in the spring.

WP for Shirley?

CIVIL servants at the Department of Education and Science are looking into the possibility of installing word processing equipment in Secretary of State Shirley Williams' private office.

This is the last Computer Weekly of 1978. We would like to thank all our readers and advertisers for their encouragement and support over the year and look forward to welcoming you back with our first issues of 1979 on January 4. Meanwhile, have a Merry Xmas and a good start to a Happy, Prosperous and Peaceful 1979.

Thorn in micros?

THERE are strong indications that Thorn Electrical, with about £100 million to spend, is now in the market for a US company that would give Thorn an increasing interest in microelectronics. A Thorn spokesman confirmed that the company is keen to make US acquisitions.

Don't miss it

DON'T miss BCS 79, the first major computer event of the new year. Taking place at the Bloomsbury Centre Hotel and Institute of Education in London from January 4-6, the event includes a wide range of presentations by BCS specialist groups culminating in a family "fun day" on Saturday, January 6. More details from BCS, 13 Mansfield St, London W1M OBP. Tel. 01-637 0471.

Awareness

THE Department of Industry has appointed PA International to help develop its microprocessor awareness programme, announced by the Prime Minister two weeks ago (CW, December 14). PA's brief is to assist the DoI in isolating and approaching the top 1,000 executives of British industry, and to develop ways of making them aware of microelectronics.

French lead in the race to sell technology to China

WITH a plan to build the CII-HB Level 64 mainframes and Level 6 minis in China, the French have stolen a march over other Western countries in the race to sell computers and other advanced electronics to the Chinese who, according to a first-hand account, are particularly handicapped in computing by a shortage of all kinds of storage.

Earlier this year, Chairman Hua made it clear that computers and electronics were regarded as key elements in the next Chinese "great leap forward" (CW, April 13).

And even before last weekend's announcement that America formally recognises China, US Presidential initiatives had been taken to promote technological trade with China, even at the expense of some loss of trade with Russia (CW, December 7).

Vice-premier Wang Chen's visit to the UK last month (CW, November 16) also raised hopes that ICL and other British firms might play a major role in China and the government has now established a special unit in the Department of Trade for co-ordinating trade with China and Hong Kong.

Meanwhile, however, the Chinese Minister with specific responsibility for computing and electronics Tsien Min, has signed a detailed accord on computer collaboration with the French government.

Tsien Min, who has also visited ICL, spent a month in France, and the agreement goes into considerable detail, naming 12 companies.

Heading the list, CII-HB is to discuss the establishment of a factory for the Level 64 mainframe line in China, and perhaps more significantly, the highly

● Turn to page 5

Boxing Day pools forecast

AS part of its live Christmas party show on December 22, Thames at Six is planning to provide viewers with a Boxing Day football pools result forecast, based on the Forecast 4 computer system developed by Professor Frank George (pictured right), head of the cybernetics department at Brunel University.

As revealed by Professor George (CW, November 16) his previous system, Forecast 3, enjoyed much success in pools forecasting, and a club run by Topaz Books, of Great Missenden, was formed around it.

Over a four-week period, 20 first dividends on the Treble Chance and several hundred

other dividends spread over the three main football pools companies were achieved by the club members.

According to Thames at Six, the forecasts for Boxing Day will be "a purely academic exercise" as there are no pools for that day and they will be followed up in the next programme to see how near the mark they were. (See back page.)

Rival bids for Modcomp takeover

ONE year after talks about a substantial minority stake were terminated, GEC is believed to be talking to Modcomp again, this time about full acquisition. There is, however, a rival suitor for the company, understood to be US instrumentation and electronics specialist Gould Inc.

Modcomp commented that a "large multinational company" was proposing to make a cash offer for all Modcomp shares outstanding, and that a "privately held domestic corporation" was seeking a 20% stake, with an option to increase it to 51%. But it would not confirm who the companies were.

Modcomp has reported strong figures throughout 1978, but would like an injection of capital to enable it to grow faster.

In the spring, Modcomp president Ken Harple told Computer Weekly that some kind of collaboration with GEC was still on the cards (CW, March 2).

After sitting on a mounting pile of cash for two or three years, GEC has suddenly swung into buying mode, making an agreed £52 million offer for office equipment manufacturer A. B. Dick of Chicago, and an £83 million bid for UK weighing equipment specialist Averys (CW, December 7).

IBM chooses South Bank site

A SITE between the National Theatre and the London Weekend Television tower in the heart of the South Bank's Arts complex has been chosen by IBM as a possible location for new building to house its regional marketing centre.

The site is currently occupied by Associated Newspapers.

Addressograph-Multigraph versifies

A buyer for Jacquard's been found
For just about nine million pound,
But it's not ITT
(See Oct 19, page three):
They're Addressograph-Multigraph bound.

Blacking threat

FEELING frustrated in their attempts to resolve a computer staff recognition dispute at British Aerospace Corp's Chester computer centre (CW, November 16), APEX members in the company are to take industrial action in the New Year.

They will black all work produced by the centre, including programs and data required for the production of the BAC 125 executive jet and the operation of administration and accounting packages.

About 40 computer staff at Chester are involved in the dispute, which has escalated since an exchange of letters between BAC management and the union failed to find a solution.

"All that has happened is that the whole matter has been referred from company management level to the managers at Chester, who refuse to consider the matter properly until we have totally withdrawn our threat of sanctions," said a union spokesman. "This we will not do."

Systime VAX software for US

A POWERFUL transaction oriented teleprocessing system being developed for the Digital Equipment VAX-11/780 by Systime, is to be sold to systems houses in the US by Insac. Systime has considerable experience of DEC software, and 14 of its software development personnel are now working on the TP system using a VAX configuration installed at the firm's Leeds headquarters. The TP system is intended for use instead of DEC's own VAX/VMS operating system and should be capable of handling 200 simultaneous terminal users. VMS is a general purpose operating system and was developed at DEC's Maynard, Massachusetts, headquarters by a team of 18.

Insac, the international software marketing venture owned by the NEB, is already closely linked with Systime by way of the 26% share taken in Systime by the NEB last year (CW, June 23, 1977).

Insac set up office in the US last year and so far has secured one software development contract there with Calcomp on behalf of SPL International, one of several software houses in which it holds a large minority share.

With the Systime package Insac will do a straight selling job to systems houses in the US that supply VAX-based systems to end users.

Meanwhile, Systime plans to introduce a range of commercial machines, the Series 7000, based on the VAX, early next year. The existing top end of the Systime product range is the Series 6000 based on the DEC PDP-11/60.

Some of the other new products from Systime in the next few months include a production control application package scheduled for announcement in February, and a range of intelligent display terminal subsystems based on the Intel 8080 and Zilog Z80, which should appear in April.

Systime says that it will definitely not extend its product range with IBM Series 1 based systems in the way that Gamma Associates, another big DEC systems supplier, has done. Systime believes that Series 1 hardware compares badly with other minicomputers.

INSIDE YOUR POETIC COMPUTER WEEKLY

BUBBLE BLOWERS Results of our Competition, which produced many merry bubbles and some extra prizes Page 2

SECRET DESIRES In an exclusive probe, Chad lifts the veil on the industry's secret fantasies Page 4

SQOUSE WHACKS Stan Boardman spends an Xmas pash-age from sunny California to the folks back home containing some plum Scouse beaver meat for those fed up with literary turkeys. Page 6

POETRY, POET-TREE And throughout our Xmas issue, the earlies of CW have blossomed forth into verse (for better or worse) stimulated in our annual Poet-tree Page 11 et al

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COMPUTERVIEW

Let's get happy for '79

THE gloom and doom merchants that are a prominent feature of the modern British landscape have leapt upon the microprocessors with the enthusiasm of Dracula approaching a virgin neck.

Nobody denies that new technology has important effects on the patterns of employment. What Computerview finds objectionable in much of the public debate on the impact of technology is the way it accentuates the negative and eliminates the positive opportunities opened by the technology.

Through the gloom of the pundit-generated fog, there is seldom a glimpse of the excitement that can be generated by micro-based systems, particularly among the young.

One of the extraordinary facts about the use of computers in schools is that they have been found to be of particular value in educating children who have otherwise been dismissed as education outcasts.

That is why it is so deplorable that the British educational system has failed to keep up with the modern world, as highlighted at a recent conference in Stockport (CW, December 7). As schools inspector David Tinsley said at that meeting, there is a growing gap between the use of technology in industry, schools and in society at large. Calculators are still regarded with suspicion in schools, never mind other information technology devices such as small business systems, colour graphics terminals, etc.

1979 is the international year of the child. Britain's contribution to this should be to launch a massive drive to give *all* our children a chance for a prosperous place in tomorrow's technological world.

It is time to brush away the irrelevant cobwebs of past social and educational attitudes and to bring a breath of real world fresh air into the classroom.

And the best way of doing this is to counterbalance the gloom merchants with sparks of fun and enjoyment, the thrill of new discoveries and a sense of excitement at the opportunities that could burst into flame to hold at bay the shadow of unemployment and social chaos that is so often held before our eyes.

It is therefore appropriate that the first major event of the year, BCS 79 (CW, December 7) will include a Saturday Fun Day which aims to do just this. Computerview fervently hopes that this sets the trend for a new attitude which will help carry the country through to peaceful and prosperous 1980s.

Ten years ago…

COMPUTER WEEKLY — DECEMBER 19, 1968

THE largest automation group in the world, GEC-Elliott-Automation, was formed by the merger of GEC-AEI, English Electric and Elliott-Automation . . . A conference was held by the Ministry of Transport to introduce the second phase of its integrated system program for highway design . . . The GPO placed an order worth £3.4 million with Creede, for equipment to be used in the expansion of the telex network . . . The first US patent for a computer program was granted in Washington . . . Robert Cooke, a Conservative MP, predicted a "1984 situation" arising from the computer system to be introduced in Swansea to handle vehicle and driver licensing . . . A system for the design and production of ship hulls by numerical control methods was presented to members of the British shipping industry.

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LAST INTERRUPT

THIS last Interrupt concerns that salesman's delight, the first-time user (or the sucker).

It begins almost three years ago when the managing director of a small company decided to join the ranks of the "modern world" and get a computer.

Thinking he was playing safe, he got a small business system from an apparently reputable manufacturer.

Six months later, the system arrived and the manufacturer, which originally offered to do the software, put him on to a "one man and a dog" systems outfit.

A year later, the system still was not working and the businessman got desperate and started considering legal action, which helped speed up the final handover data. It was not until early this year that his machine started working.

Since then, however, it has broken down continuously with both hardware and software faults. Although the manufacturer's brochure promised an 8-hour turnround response from service engineers, it has been more like 48 hours.

It all came to a head early this month when the machine was down so much that, in the first week of December, the November invoices had not yet been sent out.

In desperation, the managing director started ringing round to see if there was any organisation that could help him. As the software/house was not a member of the CSA, he found nowhere to turn but, by chance, he got talking to someone with many year's experience in computing.

"Have you tried talking to the user group?" the industry man asked.

"The what?" replied the managing director, oblivious of such a group.

"Well, have you tried finding a back-up site to run this month's invoices?" the computing man asked.

"Why the hell didn't the manufacturer suggest that?" he said, hastily moving towards the user association and the hope of a back-up installation.

The moral of this story for the user is to get a copy of the CSA contract guidelines (CW, November 23) to avoid being caught with their trousers down. And for the manufacturer, to stop overselling systems that could ruin someone else's business while it helps to boost your own sales figures.

This week's winner, who gets a Christmas special prize of £10, wishes to remain anonymous.

● From January 4, Computer Weekly will be replacing Interrupt with a new page 2 feature. A new series of Interrupt might be on the cards in the future but in the meantime we would like to thank all those readers who have contributed to it.

FOCUS

Once in London's Noble City
Stood a lonely Hollerith
It was feared by many people
Such a novelty herewith
Like a robot out of space
This machine they could not face.

Gradually, they become accustomed
To this mighty, big machine
They began to find it thrilling
So much work, so little time.
"Let us buy some just for fun"
All big companies bought one.

Years passed, designs invented
ICT and IBM
Flooded the market and created
Much less work for all the men
Programmers were common place
In all large firms and each spare space.

Then one day a new creation
Hit the market, stunned the world
Sillicone chips — what a sensation
Tiny little wires uncurled
Revolutionised our life
Much more help and much less strife.

Calculators and computers
Made more efficient, cheaper too
Even washing machines will use them
Monday morning won't seem so blue
Britain will not be the same
Now sillicone chips have made their name

The £25 first prize-winner from Tony Musgrave.

Winners of our grand Balloon Competition

WE received a splendid crop of entries for our Grand Balloon Competition — so many, in fact, that we have decided to award several runners-up prizes.

The £25 first prize-winner, after a great deal of discussion and heart-searching is Tony Musgrave of Antony Ross Ltd, Kent (see above).

A second prize of £15 goes to Rod Harbottle of Virginia Water. Rod was one of several entrants who made much of the fact that the gentleman at the back of the tableau is darker than the others.

"But the process must be reversible," he is saying: "I've got a National Front meeting at eight." The gentleman studying the manual is apologetic. "Sorry George, there is nothing in the manual to cover this situation. We'll have to check the exposure timings."

A third prize of £10 goes to Jeremy Larcombe of Leeds, who gave balloons to the same two gentlemen. "Oh no . . . not another data check", says the first. "No, — it says, 'Tell the operator to get his finger out of the line printer'!" responds the other.

We are awarding three £5 prizes for other entries which made us laugh. The first of these goes to P. T. Regan, DP manager with Petbow at Sandwich, Kent, who has the seated gentleman reading a memo: "The personnel manager writes: "Jeans, T-shirts, beards and long hair must be worn on the day shift, but operators may dress in lounge suits if they so desire on the night shift."

Then there's D. Corfield of Huntingdon, who titles the establishment "Acme Androids Ltd" and has the clean-shaven character (right) saying "Now they want females without moustaches."

Finally in this category, John Baker of the School of Mathematics at Bristol University, detected editor Malcolm Peltu's weakness for the hokey cokey and added appropriate balloons for four of the characters, starting with "You put the punch card in, you take the punch card out. . ."

An unscheduled prize of £10 also goes to Roy Candler of Peterborough, for his inspired suggestions for what the pictured showed. He thought it might be:

● The inaugural meeting of the Royal Commission on Data Processing and Privacy set up under Edward VII and due to report early next century;

● The bridge of the starship Enterprise in the forgotten silent film version of "Star Trek", or

● Members of the British Computer Society evaluating the newest range of systems from a Well-Known British Manufacturer designed to cater for the nostalgia market.

As for the two lovelies with the tape, he was in no doubt.

"The smaller picture is a still from a forthcoming TV commercial showing a reel of nine-inch wide computer tape before and after washing in Brand X."

It was nice to discover so many vintage movie buffs lurking among the readership of Computer Weekly, and several readers submitted balloons with variations on the "Play It Again Sam" theme.

The £10 prize for the first entrant received correctly to say that the two lovelies were comparing old style magnetic tape with the "new" half-inch industry standard, was M. W. Toomey, of Manor Park, London, who was one of a number of entrants who thought the two standing were playing battleships.

Many readers thought the picture was of early Hollerith equipment used in the US census in or around 1904. Our information is that it is a Hollerith mechanical data processing installation at the Bayer works in Germany in 1911.

The "special prize", which turns out to be a £5 book token, therefore goes to Angela Benn of Mitcham Data Services, who correctly identified the equipment and was the only entrant to get the date right.

Wilkes

TERMINALS

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Savings for some in packet switching

PUBLIC packet switching networks could offer significant economies to users with intermediate levels of traffic, particularly where long distances are involved. But leased circuits will continue to be cheaper for those regularly transmitting large volumes of data between fixed locations.

This is one of the conclusions of a major report on packet switching prepared by the management services division of Logica.*

In three parts, the report aims to assist both users of data communications and equipment suppliers with strategic planning. The first part, a description of the technology and applicable standards, is followed by a discussion of comparative costs and some typical applications.

The last — and longest — part is a detailed country-by-country survey of existing and projected public packet switching systems.

Working systems, the report notes, are due to come online in nearly all Western European countries within the next few years.

With qualified acceptance of the X75 standard for interconnecting networks, the prospects are high for the establishment of European-wide and international links shortly afterwards, the report said.

In North America, though, carriers are planning to support a much wider variety of devices than in Europe, including synchronous and block mode asynchronous terminals.

By contrast, European PTTs consider that synchronous terminals should either be capable of implementing X25 or should use circuit switching services.

The relatively slow response shown so far by manufacturers is expected to change in 1979, the report says, with the major manufacturers announcing interface products and network control software.

Almost every user of data communications, the report concludes, will want to be "packet compatible". Even if unlikely to use a packet switching system in the short term, they will wish to keep the option open for the future.

*Packet Switching Report, pp 340, published September 1978 by Logica Ltd, 64 Newman St, London W1, price £125.

Kennedy takeover?

DISC and tape drive manufacturer, Kennedy and Co, looks like being acquired by Allegheny Ludlum Industries Inc, a $1.5 billion firm based in Pittsburg, Pennsylvania, that manufactures special steels. The two firms have agreed in principle to the deal which should be finalised early next year.

ICL through billion dollar barrier

STORMING through the billion dollar barrier, ICL has reported turnover and profit figures for the year to September 30 which fully lived up to expectations and were greeted on the Stock Exchange with a 9p rise in the share price, on an otherwise very dull day.

The company reported pre-tax profits 24% ahead at £37.5 million on turnover 22% up at £509.4 million, and says the growth is entirely real, since minor inflationary effects were cancelled out by unfavourable exchange rate variations during the year.

The company looks forward to similar growth in the current year, putting it in line for over £610 million turnover and £41 million profit for 1978-79. It is well-placed for this, with orders taken during 1978 some 35% ahead of the previous year.

ICL has experienced the same trend towards outright sales that IBM has reported over the past two years. As a result, the one area where ICL was below plan was in growth in rentals. Outright sales rose from 35% of turnover last year to 42% this year, while sales to leasing companies fell from 16.8% to 12.5%. Rentals and services were down from 48% to 46%, but ICL claims that the lower figure is still one of the highest in the industry.

Asia and Australasia was the star overseas region, with business growing 30% to £60.6 million. African business grew 24% to £49.6 million, while Continental Europe lagged behind the overall growth rate with 19% to £133 million, which was still ahead of the industry average. Only two overseas subsidiaries, the US and Finland, were unprofitable.

SEMS sets up a subsidiary in UK

AFTER several abortive attempts to enter the UK market through distributors, Europe's biggest minimaker, SEMS, has decided to establish a wholly-owned subsidiary in the UK. Similar operations in Holland and Belgium are also planned for 1979.

Meanwhile the French company has announced a comprehensive series of hardware-software packages for both its Mitra and Solar minicomputer lines.

Called SIS, for SEMS Interactive Systems, the series includes four lines, three based on Solar and one on Mitra processors.

The SIS-T is the Mitra package, and is targeted at systems builders wanting a lower-cost alternative to IBM's System 38. It runs the Tribu database and transaction processing software, which includes a proprietary high-level non-procedural transaction language, plus Cobol for background batch work.

SIS-T systems are priced at £12,000 to £60,000.

SIS-L, aimed at low-cost business systems market, offers a choice of Extended Basic or Accounting APL interpreters for fast interactive program development. Offered with Solar 16/40 and 16/65 models, it supports four to 24 terminals.

SIS-M is offered with the same two processors, and uses the Mutex mixed-mode multiprogramming operating system with batch Cobol, RPG II and Fortran IV compilers.

SIS-S is offered with the full line of Solar processors for scientific applications, and comes with Basic, Fortran and APL.

The three Solar-based packages all feature both IBM 2780 and HASP RJE emulations. SIS-M systems can also communicate with each other using the X25 protocol, and the top model in the SIS-S line can communicate with multiple hosts.

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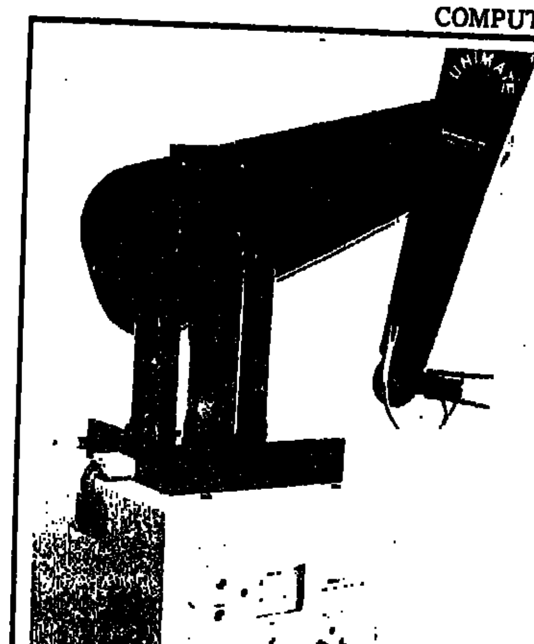

Industrial robot revolution

AN example of the micro-inspired "second industrial revolution" is this latest industrial robot from Unimation.

Known as the Programmable Universal Manipulator for Assembly, or Puma, it has already been sold to General Motors for an experimental small-batch production programme for automotive parts, even though still in the pre-production stage.

With a load capacity of 7.7 lbs and an arm tip velocity of 3.3 feet/second, the robot occupies little more space than a human worker.

It offers similar capabilities of movement to humans, having five axes of motion that correspond to a human's waist, shoulder, elbow, wrist and hand rotations. It can position an object to an accuracy of ± 0.004 inches. The arm is driven by microprocessor-controlled servo motors, and the whole thing can be programmed either by a teach module or a computer terminal.

Woman, 22, jailed for bank computer fraud

A 22-YEAR-OLD woman was jailed for two-and-a-half years after admitting the theft of £8,530 from Barclays Bank branch in Buntingford, Herts, by manipulating bank accounts by computer.

The fraud, staged over a two-year period, was carried out by Georgina Ansell who diverted money from customer accounts to her own and those of friends. She then withdrew this money, most of it going to buy gifts and drugs for her ex-boy friend.

The actual method used by Ansell to perpetrate the fraud has not been disclosed in detail, but Barclays said that as a supervisor within the branch she had provided input to the computer.

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DOWNTIME reveals secret desires of the industry

All they want for Christmas is to be . . .

EXCLUSIVE REPORT BY CHAD

LIZ REES . . . wants to be a concert pianist at the Albert Hall.

DEREK ROBERTS . . . Chicago jazz band clarinettist.

WHICH managing director of a computer company would really like to play cricket for England, and which industry figures really want to lead an all-woman expedition to Everest or play in a Chicago jazz band?

Following an exclusive in-depth probe survey study, I can now reveal all.

Sitting on the sidelines of the industry jotting down its quirks and foibles each week, I have often envied our intrepid reporters in their daily search for the news. And once they have found the news, I have watched, fascinated, as they follow our editor's edict, cribbed from the ever-grey film classic "Casablanca."

"Round up the usual suspects," says our Ed, meaning, that the reporters should ring round the industry "spokespersons" for reaction comment.

This Christmas, I decided to follow his command. But instead of asking about reactions to government reports, micro policies, *et al*, I asked: "What is your secret ambition; what, other than your current job, would you rather be doing?"

Of all the celebrities, the one whose face appears in the computer Press most often is **LIZ REES**, the salesperson from Case who features in their ads. She has ambitions to be a company managing director in the travel or hotel business. Alternatively, she would like to be paid to be a calligrapher, a cabinet maker, or a concert pianist — at the Albert Hall at least.

DEREK ROBERTS, managing director of Plessey Microsystems, had no hesitation in naming his own secret ambition. "I would have liked to have been a clarinettist in a Chicago jazz band." There seem to be many frustrated musicians in this business — perhaps we could start an orchestra of sorts.

IBM user association chairman **DES LEE** could help, as he has aspiration to play in Rod Stewart's backing group — a role to which he would be well suited since, believe it or not, he was once a full-time member, back in the early Sixties, of Sounds Incorporated, the band that played on the same bill as the Beatles on numerous occasions.

Despite the frighteningly high death rate among pontiffs these days, Des revealed another ambition: "I would like to be Pope John Paul II so I could recruit new members for the CUA in the Eastern bloc.

"On second thoughts," he said, "what I would most like to be is a chip in Raquel Welch's digital pendant watch." How he could reconcile that ambition with being Pope was not forthcoming.

ICL user association chairman, **DR HOWARD WRIGLEY** is waiting for a call from Jim Callaghan because he sees himself as a sort of Minister of Technology concerned with implementing what he described as "a rational policy for the integration of computing in society."

REAY ATKINSON, head of the Department of Industry's computers and electronics division, has two ambitions, one serious, and one idealistic. The serious one is to try his hand at technical marketing, "to see if I can actually sell things."

Idealistically, however, he would run far from the madding crowd to seek self-sufficiency on his 40-acre smallholding, "using microcomputer systems to control the cattle feed of course."

Former BCS president **GERRY FISHER** would like to be first Chancellor of the Exchequer of an independent Scottish government. Alternatively he would like to lead the first all-female (except for him) expedition to Mount Everest.

Last year's BCS president Professor **PAUL SAMET** said his mother was always asking him when he was going to leave this computer nonsense and go back to decent mathematics. She gave it up when he became a professor of Computer Science, though.

ALAN BENJAMIN, director-general of the Computing Services Association, would like to be conductor of the Chicago Symphony Orchestra. He imagines himself conducting them in Bruckner's Ninth Symphony. Attendance would be an obligatory part of CSA membership.

Head of the national Computing Centre, **DAVID FIRNBERG'S** early ambition to be an opera singer faded when he realised what hard graft the job entailed. He would now like to be a commentator like Robin Day and have the opportunity to criticise without having to carry the can at the end of the day.

LORD AVEBURY, chairman of Digico, would like to be a barrister of the Perry Mason vintage. Alternatively, in his old age he would like to retire to the wilds, like sci-fi writer Arthur C. Clarke while keeping open his connections with the outside world. "Clarke has a delightful pad in Colombo full of electronic aids," says Avebury. "I would write books if I had his talent and imagination."

DR DOUG EYEIONS plays many different roles, including technical director of BOC Datasolve, active IBM CUA member and one of the founders of the brave new Conference of

MY manic depressive (he supports Chelsea) schizophrenic, day-dreaming editor, Malcolm Peitu, can't make up his mind whether he would prefer to have been someone Dutch, like the best young British footballer, or Funny, like Groucho. But for those who fail to achieve their ambitions, he passes on a message of comfort from Groucho: "Time wounds all heals."

European Computer User Associations. But the part he would secretly most like to play is that of E. J. Thribb, the bard beloved of Private Eye readers.

"I am sure my own poetry would lack the beauty of language of Thribb's own work," Doug admitted. But he added, "My son is called Keith, so I more than anyone know how Keith's mum thinks and feels about the subjects of Thribb's poems." Keith's mum is a source of inspiration to E.J.

If they ever make a Jaws III film, Hollywood's movie moguls should sign up **PETER MERRICK** for one of the leading roles. Because the mild mannered gent who heads up Lowndes-Ajax Computer Service spends his weekends engaged in a life and death struggle fishing for sharks off the coast of Cornwall.

Recounting some amazing tales of the deep, Peter old me, "I won £100 at one time for catching a shark weighing more than 75 pounds and a few years ago I caught the fourth biggest blue shark that year in the English channel. It was six feet long and weighed 106 pounds."

Peter admitted that his ambition was to run a fleet of shark fishing boats when he retires, although at the moment he thoroughly enjoys being an entrepreneur in the computer business.

The UK's third of the NEB Inmos triumvirate, **IANN BARRON**, a popular guy for scoop-oriented media men at the moment, has just one secret ambition. All he wants for Christmas is a 'No Comment' record. My hard-hitting reporting colleagues pressed Barron for further clarification of this startling revelation, at which point he reached for the 'on' switch of his hi fi . . .

JOHN McNULTY, managing director of Modular Technology, said that he would like to continue what he is doing, but thought he might find time for a couple of worthwhile part-time jobs on the side. Taking an unseasonable dig, he said he would like to be head of the NEB, "to dismantle it and its silly plans for micros," or to be head of Post Office Telecommunications, "to mastermind the liberalisation of UK telecommunications."

ICL managing director **DR CHRIS WILSON** fantasises about playing cricket for England. Happily, ICL's latest financial scorecard is in close harmony with How I would like to see English results from Australia.

His chairman, **TOM HUDSON**, of whom he once said "this industry moves so fast that you never know what your chairman will say next," reveals a faint regret that he never mastered a musical instrument. "I would have liked to have played the piano really well," he said. That, too, came as a surprise to Dr Wilson. "I didn't know he wanted to be a pianist. I must ask him about that," he said.

Getting close to the classic 'wannabeabrainsurgeon,' **MIKE STERLAND**, boss of UK Apple Computers distributor, Personal

CHRIS WILSON . . . would like to play cricket for England.

Computers, at first felt a strong urge to be Dr Jonathan Miller. But on reflection, he broadened the outlook to being an academic leading a touch of wishful thinking to view not uncommon among his fellows in the personal computer business, he also said he would like to be a wealthy patron supporting struggling entrepreneurs.

Our own FOCUS man, despite his frequent attacks on the "academics of the BCS," would secretly also like to have been a Don at Oxford — or a playwright.

Winner of the Computer Weekly "We wish we had thought of it first" prize is **KERR BORLAND**, marketing director of Nascom Microcomputers. While expressing a desire to stay as lunatic as he is (these things

REAY ATKINSON . . . would like to try sailing.

can be arranged—Ed), he said, "what I really want to do is an in-depth systems research study of a brothel." Queue at the foot of the page for sub-contract consultancy work from this one.

Someone with a clear view of his destiny, and with his priorities in the right order, is the imperturbable **MARTIN UNDERWOOD**, managing director of Lyme Peripherals and bon vivour of note. "I want to be retired, preferably at an early age," he said in snap response to the question. After some deliberation, he added to this an ambition to be in politics, obviously in a big way. "I want Jim Callaghan's property on Tony Benn's estate, with Ted Heath's yacht at the bottom of the garden," he said. "You do pretty well in politics."

LORD GLENAMARA, formerly Postmaster General and Minister for Education Ted Short, is now chairman of Cable and Wireless, and he shows the most likelihood of actually achieving his secret ambition, as he has been working on it for a number of years. He is a keen amateur painter and wants to paint an interesting English sky entirely to his own satisfaction.

IAN MACKINTOSH of Mackintosh Consultants, leading analysts of the new technology and its impact, brought my round-up to a serious conclusion, when he said, "I would like to play a part in helping to achieve a society in which more people work and life in a pleasant environment using modern technology to help them."

There is nothing left to say, except, Merry Xmas, Happy 1979 — and may all your wishes come true.

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Data General chips in with Nova 4

FOR the minicomputer industry 1978 was unquestionably the year of the bit-slice microprocessor, with Honeywell, Harris, GEC, Ferranti and Modcomp just a handful of the companies bringing out new minicomputers with processors built around the ubiquitous four-bit AMD 2901 chip. Latest to adopt this approach is Data General, which has brought out three new Nova processors as the Nova 4 line, offering more power and lower cost than the Nova 3s.

Key feature of the smallest, the Nova 4/C, is that it concentrates the power of a Nova 3 on a single board, including the processor, and 32K 16-bit words on a single 15in x 15in board.

It features the full Nova 3 instruction set, plus two standard additional instructions for load/store byte, and four optional ones for hardware multiply and divide. There is automatic program load and an optional real time clock.

The Nova 4/S is a two-board CPU with a fast 13-word instruction buffer, with up to 32K words of memory configured on a second board with four-way interleaving at board level. The interleaving allows an access every 100 nanoseconds, giving a 10 Megaword per second transfer rate on the memory bus.

The Nova 4X adds a memory management and protection unit which enables up to 128K words to be addressed.

The traditional front panel of flashing lights is replaced by a console display or printer terminal on all models, and boards now slot into the chassis using gold-plated pins, for easier maintenance.

The three Nova operating systems — DOS, RTOS and RDOS — are offered, and languages include Fortran IV and 5, the Algol-like DG/L, extended Basic, business Basic, and assembler.

An optional floating point unit is offered, which runs in parallel with the CPU, unlike that on the Nova 3.

Data General expects the new models to prove particularly popular with OEM business systems builders. The Nova 4/C full memory costs £2,352; the 4/S costs £5,107; and the 4/X, configured with all the options, 20 Megabytes on disc, tape unit, 180 chps printer and four displays, costs £38,227. The 4/C is on 180 days delivery and the 4/S and 4/X, 90 days.

NEWS IN BRIEF

Butler Cox at White House

UK MANAGEMENT consultancy Butler Cox & Partners has been invited to stage a seminar on viewdata in the White House. The presentation will be made to White House advisers and staff in Washington in January, and will cover Prestel, developments in France, Canada and Japan, and CAP-CPP's plans for "telesoftware" via Prestel.

Security scheme

THE National Computing Centre's Computer Security Awareness Scheme (CW, May 11) has now officially started up. Books, seminars, newsletters, training materials, and so forth will be produced, and a subscription scheme is being offered for £86.64 which covers six "action reports" and six newsletters a year, updates to the NCC's security handbook, and admission to an annual security conference.

Training packs

A RANGE of operator training packages has been announced by Univac intended to help users train staff on its OS/3, OS/9 and 1100/OS operating systems. The first has already been introduced and the other two will follow early in the New Year. Each package comprises a set of lessons on video tape, supplemented by software intended to provide a controlled operating environment for the trainee.

Burroughs to boost 1800 line?

Word comes to us from far America
That, stirred by the mighty System 38,
Bluff Burroughs hath with keen alacrity
Took space in learned journals from this date
To boost the envious 1800 line,
Extol its virtues, praise it to the skies
The merits of its software eulogise,
Against the day when it can add three new,
More lusty models, aye, and cheaper too.

(The facts are true: only the phrasing has been changed to protect the poetic mood of this week's issue.)

New voice for IBM users

PROVIDING meaningful feedback to IBM on users' needs is one of the main aims of Professor Kurt Bauknecht, the newly elected chairman of the SHARE European Association, SEAS.

Professor Bauknecht has worked on hardware and system software development at ITT and also with Bull in Paris. He is now Professor of Informatics and Director of the Computer Centre at the University of Zurich. He was educated at the Federal Institute of Technology in Zurich.

Finance system

AN interactive financial modelling system intended for use by non-computer personnel has been introduced by Lowndes-Ajax Computer Services. Called Simplan, it was developed in the US by Social Systems Inc of chapel Hill, North Carolina, and enables the various parameters in a financial model to be changed using free-form English statements. It is already used by 40 companies in the US.

French sales to China

● From front page

successful US-developed Level 6 minicomputer line.

A multi-layer printed circuit board plant and other technical assistance are also included the factories being supplied by the French on a turnkey basis.

Logabax is to provide assistance with display terminals, printers and floppy discs, with a view to establishing licensing agreements similar to those made with Brazil and Poland.

R2E is to supply Z80-based Micral 80/30 microcomputers, SEMS is to supply Solar minicomputers, and CAP-Sogeti is to assist in the establishment of a national software centre.

China's computer industry is at present handicapped by a desperate shortage of all forms of storage, and a need for automated manufacturing techniques, says Dr Barry Borgerson, director of research and technical planning at Univac, who visited China in October on a US IEEE delegation.

"The Chinese computer industry is actually part of one of the ministries," he told Computer Weekly in an exclusive interview.

"There are about 200 computers in the whole country," he said. "There are about 10 different types, ranging from an enormously bulky copy of the Data General Nova 1200 to several one million operations per second machines, and one 2 MOP computer.

"I saw only one disc drive in the whole country, and that had a huge one metre diameter disc — so they always order vast quantities of disc backing when they buy a Western computer.

"With no discs, they have no operating systems, although they are doing research on time sharing. All their systems at present are batch paper tape using Fortran IV, Algol and Basic, and they have no business applications at all. Two-level multiprocessing is the best they can achieve, and 32K is a large memory," he said.

There is a small 16-bit machine doing train scheduling at Peking railway station, he reports.

"They are also doing small-scale ECL. I only saw one clean room, but it was a hot day, and all the windows were open. Everything is handled because they have no automatic handling equipment, so they get very low yields," he said.

Micro tender beats mini

MICROCOMPUTERS are beginning to win orders in the business environment against minicomputer opposition. Altair agent in the UK, Compelec, has just won an £18,500 order from Glacier Metals of Ilchester for an Altair 300 system that was being tendered against a Data General Nova.

According to Compelec managing director, Rod Versluys, the two terminal, multi-user system, with 10 Mbytes of hard disc storage, will be used by Glacier for running corporate stock control.

Local authorities list COM benefits

IMPROVED data retrieval is the main benefit derived by local authorities from using computer output microfilm, according to a report* now available from the Local Authorities Management Services and Computer Committee, LAMSAC, on the use of COM in local government.

Interestingly, of the 57 existing or prospective users of COM that completed the questionnaire which forms the basis of the report, 48 cited savings in space as an important reason for deciding to use COM, while only 31 listed improved data retrieval. However, of the 44 users that answered a question on actual benefits achieved from COM, only 20 put space savings as the main benefit, while 24 cited data retrieval.

The report is a workmanlike document covering most aspects of COM usage, including the costs of using microfiche compared with paper, the legal, security and audit implications, the services provided by COM bureaux, in-house COM recording and the software implications of using COM. The latter section considers the relative merits of formatting data for COM on the host computer and on a minicomputer front-ending the COM recorder.

The report also includes a table that details what more than 50 authorities all over the country are using COM for. It covers nearly 50 different applications.

*COM (in local government, 28pp, £2.50, LAMSAC, 3 Buckingham Gate, London SW1E 6JH.

French privacy team

THE members of the commission which will administer the French data privacy law have been named. They include six MPs, six judges elected by their colleagues and three nominated by the government.

The National Commission for Informatics and Liberty, as it is called, was set up under the privacy law which was passed in February this year, and is charged with controlling the licensing of all public sector files.

There are only two computer men on the commission. They are Jean-Claude Sarazin, formerly with Bull and now with La Redoute, and Paul Alba, from the oil company Groupe Elf-Aquitaine.

Agreement ends

A ONE-YEAR distribution agreement signed in the US late last year by Data General and the Wyle Group is not being renewed. Wyle sold Data General systems to end users in the West Coast region. The firm still sells Datapproducts, Lear Siegler and Memorex kit.

IMMEDIATE DELIVERY — QUANTITY DISCOUNTS

TELETYPE 43KSR — £869 — Also ASR and RO Models

LS120 — 120 cps terminal — £1995

LA180 — 180 cps printer — £1700

LA36 — £849

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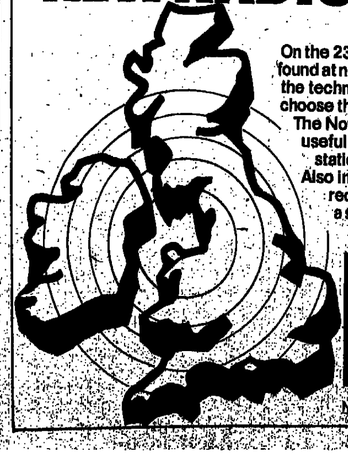
THE STORY BEHIND THE NEW RADIO WAVELENGTHS



On the 23rd of November many familiar radio programmes will be found at new positions on the tuning dials of our receivers. What are the technical reasons behind the changes? And why did the BBC choose the particular new wavelengths for Radios 1, 2, 3 and 4? The November Wireless World brings you the whole story — plus useful tables listing the new wavelengths of all the UK radio stations involved.

Also in this issue: constructing a noise reducer for tape recording; an unusual design of electronic burglar alarm; a survey of laboratory "breadboards."

wireless world

Electronics • Television • Radio • Audio

NOVEMBER ISSUE OUT NOW 40p

'SCOUSE RULES' SAYS STAN BOOTLE-KELLY

DRAGGING himself from the crabs of Frisco's Fisherman's Wharf, the sunshine of Malibu Beach and other rigours of the Californian climate, culture and computers, Stan Bootle (pictured right), has taken time off to send a Xmas parcel to us folks back home.

Stan's real name (would you believe) is Bootle (he is also a native of Scouseland). He became part of the folk-singing revival in the 1950s, under his Kelly nom-de-folk, when he took the Liverpool back street Come-All-Ye's to Cambridge and a maths degree.

Also part of that other-kind-of-folk movement, computers, Stan dates back to the Edsac at Cambridge when, he claims, "Software was a Man's job." He is running his own company called ADAM-ant Inc in San Francisco, which specialises in "A natural language" systems for minis and micros. He claims it is the fastest growing company on the West Coast run by an Anglo-Irish topologist.

He begins his message of Christmas cheer by reminding us that in the States "we have a sort of dress rehearsal for Christmas, called Thanksgiving, then you have four weeks to recover from the bout of turkey eating. Thankfully the Pilgrim Fathers did not have to survive on, say, beaver."

Now, read on . . .

A Lexical Xmas—and a Phonemical New Year

WELL, this year, two big dinners or no, a small cloud darkens my festive sky. My stint on the committee of the Association for Literary and Linguistic Computing comes to an end, although I will continue to support its aims and activities, and urge you all to do likewise (contact the secretary Dr J. L. Dawson, ALLC, Sidgewick Site, Cambridge University).

I take this opportunity, while Computer Weekly readers are seasonably vulnerable to goodwill appeals (what d'you mean, "You gave at the office"?), to heal, once and for all, the so-called Snow two-culture Dichotomy.

The underpinning aim of the ALLC (shared by other bodies such as the Association for Computing in the Humanities and the Association for Computer-Assisted Text Analysis) is to encourage the use of computers by scholars in the Humanities. Yet many of the latter still view the computer as the private reserve of a strange tribe of inhumanly numerate Godzillas what is solving problems in Particle Phizzicks and Number Feary, using opaque jargon and dumb algorithms which are completely irrelevant to the real world of Mozart and Shakespeare.

What is sad about this idea that computers do only "sums," is that one of the earliest computer applications was the clearly successful "Winning-World War II" package assembled at Bletchley in August, 1939

by a brilliant team of linguists, mathematicians and crypto-analysts.

Had they not; using a computer primitive by present standards, managed to straddle the gap between the "illiterate" and the "innumerate," one wonders what the current state of research in the Humanities would be.

A new generation of scholars, exposed to "a little Basic and less Algol" at grammar school, is beginning to accept, as a matter of course, that "knowledge" can be stored, accessed, browsed through, edited, mutilated, mistreated, misinterpreted or simply ignored, using a VDU/keyboard/printer/modem at least with as much efficiency and serendipity as can be achieved by driving to the nearest library or book-store.

The new technology is not without its potential hang-ups and frustrations, but these are, theoretically, more soluble than the corresponding problems with the internal combustion engine (What a Dickensian device compared with our nano-second chips), the traffic jam, car parking, the single-access library catalogue, the stolen book and the annual inflation of Springer-Verlag's price-list.

The fly in this database is the cost of encoding. ACATA (The Association for Computer-Assisted Text Analysis) is attempting to "network" as many computer centres as possible to reduce the risk of duplication and to encourage standardisation in the production of machine-readable texts.

Also, with advances in low-cost word processing and typesetting computer systems, we are seeing more and more new publications starting life on tape and disc. And perhaps, soon, OCR will fulfil its overdue promises.

In spite of all these technological advances, we must face the objections of the traditional humanist scholar who claims, with some justification, that gadgetry is often pursued as an end in itself. Let us note, first, that Caxton's new-fangled device met similar objections!

There is also the danger of what we might call spurious "inch-worm" quantification. Converting a sonnet to strings of bytes on a disc is not in itself reprehensible; you simply have another representation of the sonnet. From it you can print or display the poem and thence read and enjoy it (or not) as formerly.

In addition, you can readily subject each line, word, phoneme or whatever, to unlimited statistical scrutinies and collocations galore, thereby producing any number of secondary "objects" for further study. Such analyses are now so easy to do and can be so superficially impressive that they are often found masquerading as genuine research.

In the ould days, one would only embark on such tedious counting ventures if one had some valid hypothesis in mind. But it is unfair to blame the computer. An excellent tool allows good workmanship but never guarantees it.

There are now sufficient examples (excluding the obvious mechanical concordances) of computer-aided literary research where fresh insights have been gained in areas beyond the reach of purely manual methods. "Where? What? How?" I hear you cry. Join ALLC and you'll get the Bulletin thrice per year!

And yet further progress is undoubtedly hindered by the fact that non-computer scientists are still faced with a whole Babel of alien languages and tricks of the trade before they can confidently access the impressive corpora now available online (the Bible, Chaucer, Shakespeare, Cæsar and Aquinas to drop but a few).

The development of natural language programming systems has proved to be a frustrating and elusive goal. Are "natural languages" precise enough to guide a finite-state machine through its mindless maze of possible steps? And if so, which natural language would minimise the xenophobia attendant on such decisions?

English has undoubtedly gained the mantle of Lingua Franca Scientifica (the Berkeley campus has a French Professor Of Eng Lit; the best Shakespearean scholars are German and Jesperson was Scandinavian: QED) but no firm decision on which English dialect (BBC, ITV, Strine, Bronx, Geordie etc) should unify all future data processing and intellectual communion has yet been reached.

On strictly statistical grounds, a form of mid-European pidgin English should prevail. As the great Armenian mathematician Aram Besicovitch once said to a critic of his diction: "Zere is more pipples vot spik inglish like wot I do, zan like vot you do" (I paraphrase).

Sympathetic though I am to this claim, I feel that the centre of gravity of scientific activity has noticeably drifted away from Cambridge; further, that a more proletarian, less BBC-3 Talks Department ambience would help win over the socialist and developing nations. Shunning the many stridently self-interested lobbyists and their patent lack of objectivity, I propose the Scouse dialect, as spoke in Liverpool.

I have proved elsewhere that since the wealthier of the Potato Famine refugees who fled to Liverpool in the 1840s moved on to New York and Boston, while the more scurrilous of the poorer were transported to Van Diemens Land, Merseyside emerged with the ideal working class intelligentsia.

The Scouse variant, therefore, already the indignant tongue of a million wackers and judies, is a strong contender to extend to all classes the role that Latin played in bourgeois scholastic discourse up to the 17th Century.

Note, too, that Engels' Cotton Mill was just a few miles up the East Lancashire Road but for those indifferent to political contentions I will offer irrefutable phonological, lexical and syntactical arguments, like.

Take vowel sounds for example. Whereas most known languages have baffling mixtures of forward, backward, open, closed, nasal and oral vowels, Scouse has only one category, namely backward/nasal and all forms, including the Dingle Umlaut, are notably free from diphthongisation.

The consonants, too, present fewer problems for the foreign learner. The mouth is kept furly closed, like, with the teeth clenched, greatly reducing the physical effort of articulation. The velar fricative (eg, the "ck" in "lick") and, to a lesser extent, the initial heavily palatalised "k" (as in "job queue") will, however, need careful practice, even by the Scots and Germans accustomed to "loch" and "Buch." They will need to add a more urgent expectorant and glottal quality to such consonants.

Ample compensation can be sought, though, in the complete absence of the "th" sounds (both voiced and voiceless), a feature of standard English phonology which has literally alienated the French for countless generations and, indeed, triggered the 100 Years War.

Some would argue that Scouse has repealed Grimm's Law, so that all those centuries of pointless consonant mutations of simple Gothic sounds can now be declared inoperative.

WHAT YOU MEAN YOU GOT RANGUAGE PROBRIEM, DEH, WACK?

At the morphological level, Scouse has useful and easily learnt rules for liaison and agglutination which can save up to 50 per cent in database storage requirements with only occasional loss in precision.

An impressive example is "What is the" compressed to "S" as in "Smarrerwitchyaderwack" = "What is the matter with you, my dear fellow"? Note, however, that "Worral" can mean *either* "what will you" (as in "Worralu'ave" = "What will you have") *or* "Which I will" (as in "Do ganne worral see next week" = "The game which I will see next week").

The regular Scouse diminutive will prove useful for all those trying to squeeze the most from an 80-col card or a 4K chip. The suffix "-y" is added to the minimal root of the word to be shortened. Thus "Wellington Boot" becomes "Welly;" "Beverage" goes to "Bevvy;" "Upper Parliament Street" can be either "Uppy" or "Parly" (a rare 1-many example) while both "Tollemache Ale" and "Fellcien de Tollenaere" can be stored as "Tolly" (a much rarer many-1 example).

A newly reconstituted ISO (International Scouse Organisation) could readily issue mandatory Scouse werds and phrases to be incorporated in the major computer languages as standard function names and diagnostic messages, thus ending the current chaos of parochial variants!

In Basic, for example, a missing line number would invoke the colourfully aggressive error message: 'YER WHA?' Major errors would elicit the response 'GERROFF' and might even lead to your "Proey" (program) being "Wellied" (aborted) without prior "Griffin" (warning).

A simple sign-off command "TRA, WELL," would replace the present jungle of BYEs, Ends, AMENs and Finisheds.

The day-to-day banter heard in countless installations would lose its po-faced, anaemic character. Repeat after me the following paradigms:

"De Blockerman's runnin' like a glass-blower's arse"
(*"The Supervisor appears to be functioning well"*)

"Wit' all youse chin-waggin', me diddy's gone under de lamp"
(*"The growing number of conversational time-sharing users is noticeably degrading the performance of my mini"*)

"Yer proey's full of tats; I 'ad to gerroff at Edge 'Ill"
(*"Your program needs debugging; I was obliged to interrupt it prematurely"*). NB Edge Hill is the penultimate station before Lime Street, the London-Liverpool railway terminus. 'Tat' is a noun derived from the adjective 'tatty' = 'tattered'.

"De Subby's crawlin' wid nits"
(*"This small sub-routine still has many minor bugs in it"*)

"Keep dousse in de box, dere, I.a, dere's a shuddle on de well"
(*"Watch the VDU carefully, my good man, I fear that a flip-flop may be malfunctioning"*)

The relative failure of such artificial universal languages as Esperanto and Interglossa indicates that we are justified in promoting a living language, warts and all, with a sufficiently creative pool of neologisms and malapudlianisms to keep the socio- and psycho-linguists amused (they can be real buggers when they're bored).

At the literary level, Scouse does not yet have its Hardys, Burnses or Priestleys, but I'm doing my best. Scouse Press, founded by adopted-Scouser Fritz Spiegl, has published many guides to the dialect, including a definitive phrase-book in the Teach Yourself series, entitled "Larn Yersel' Scouse" (Spiegl, Shaw, Kelly).

It is not widely known that Hugo's novel "The Hunchback of Knotty Ash" was re-sited from misguided patriotic motives; nor that Donizetti actually wrote an opera called "Emilia di Liverpool" (first performed in Liverpool under the direction of Fritz Spiegl); nor that Smetana's masterpiece "The Battered Bride" was inspired by that composer's visit to Scotland Road.

My trump cards, showing John, Paul, George and Ringo will remain up my sleeve to counter any unexpected opposition.

Lest you think that Liverpool is merely the Soccer mecca of the Universe (and it's true that we lead both Division One and the Central League!) recall that the neutron (without whom the atom, as we know it today, would fall apart) was invented and patented at Liverpool University in the 1930s.

And so in one swell foop, I offer you a bridge over troubled cultures, a unity of discourse, a unity of data format, a most COMMON language!

If you doubt *dat*, ar kid'll put a fleuk's gob on yiz!
(*"My brother will smite you severely".*)

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MICHIE'S PRIVATEVIEW

Memory tricks for the jelly computer...

A RECENT Privateview (CW, November 9) discussed various disadvantages of having to operate with a computer made of jelly and the remarkable human tricks developed to offset the seemingly crushing handicap. High on the list were the mnemonic ruses employed by professional "memory men" to conjure amazing feats of recall from the brain's limping bit-rates and pawky store.

Lest readers be carried away by understandable scepticism, I report below a recent and revealing conversation.

Here at Bear Gulch, 2,300 feet above the Stanford campus, my apartment looks across redwood vistas towards the Pacific. In the other direction one can see clear across the San Francisco Bay to Count Diablo. Upstairs lives my landlord, Ed Seaman, chief engineer of Newall Research Corp, Saratoga, and a most delightful companion.

While mixing the second round of drinks for an impromptu landlord-tenant meeting to celebrate Thanksgiving, I was baited in my tracks by Ed's request that I ask him to cube any number between 0 and 100.

"OK!" I said, "Try 73." After a little knotting of his brows and silent mouthing he came back with "389,017".

"Well," I said guardedly, I suppose that *might* be 73 cubed . . ." So he ran upstairs and fetched his hand calculator. Up came 389,017.

"How about 37 cubed?" More screwing up of the eyes, and then "50,653". "You see," he said, half apologetically, "I haven't done that since my junior high-school days, and that's more than 30 years ago. So I'm pretty slow, and probably have quite a few gaps. But you know the secret? It's really quite simple. I got it from some book of magic tricks when I was a boy. It told about how you could memorise actually anything at all with the right mnemonics. This cube table was just one of the examples.

"Now I happen to have one of God's most lousy memories, just lousy. Really. What you do, though, you have a code of *sounds* for each of the digits 0, 2, 3, . . . and so on. Here, like this—" and he reached for a scrap of paper.

Below is what Ed Seaman wrote:

1 . . . T or D	6 . . . Ch or J
2 . . . N	7 . . . K or G
3 . . . M	8 . . . F or V
4 . . . R	9 . . . P or B
5 . . . L	0 . . . S

"So how do you use it?" he continued. "You make up *words* using any old vowels between these consonant sounds. Then SMOKE, and that's how it was in that old table. Never mind the leading zero, 037, okay? But then we have, why . . . LOSE A CHILLY HOME" and he wrote out

0	3	7	=	5	0	6	5	3		
S	M	O	K	E	=	L	O	S	E	A	C	H	I	L	L	Y	H	O	M	E

—. "Wow!" I said. What else was there to say? Then after reflection: "But you still have to remember a hundred items, except that instead of numbers you have all this garbage."

"Yes, but remember the garbage. You just do . . . Here, I'll show you. I just might have it still. See, I wrote it all out you know, copied from that book. I'll go see now."

In time Ed showed up carrying two yellow sheets from an old exercise book, written in pencil in a careful hand. Here is an excerpt.

21	hand	=	punched
22	nun	=	does take a vow
23	name	=	a dandy joke
24	New Year	=	with my fine rye
25	Nile	=	a dull channel
26	wench	=	took all cash
27	nag	=	to buy each wife a home
28	knave	=	naughty plan
29	knob	=	no army top

9261
10178
12167
13824
15625
17576
19883
21952
24389

Entries like 30, 40, etc., were down simply as numbers, presumably because they give less trouble than finding phonetic equivalents.

Next Privateview will turn from jelly to silicon and consider some new semiconductor memory specs. A far cry, no doubt, from seeing the NEW YEAR in with MY FINE RYE, possibly with a WENCH who TOOK ALL CASH. But certain common principles are emerging which are worth a look.

Donald Michie

Systime doubles its turnover

AIMING for a turnover of £35 million in 1982, the Leeds-based minicomputer manufacturer, Systime, has announced a turnover figure for its last financial year, ended September 30, of £9.1 million, more than double the previous year.

At the same time net profits increased by 76% to £845,000.

Systime configures its range of commercial systems around processor boards that it buys in from Digital Equipment and the company now adds between 80 and 95% of the value of each system it sells. It builds its own VDUs and will soon be manufacturing all its own matrix printers, although it will continue to buy in big disc drives from CDC in the US, line printers from CDC's UK subsidiary, CPI Data Peripherals, and cartridge disc drives from Data Recording Equipment.

The biggest growth within the company is in the software department, where Systime has increased the head count from 95 to 140 since the end of September. About 30 of the new programming personnel are straight from college.

Systime chairman, John Parkinson, said that the aim for the company's current financial year was to increase turnover by at least 50% and profits to well over £1 million. But the biggest percentage increase would be in exports where business is expected to jump to £2.5 million from the £1.1 million achieved in the year ended September 30.

The firm is already established in the Netherlands and has just opened an office in Paris.

Commenting on the £35 million projection for 1982, Parkinson said that although this was nearly four times the 1978 figure it did not assume a four times increase in the number of systems sold, because revenues from service contracts and hardware add-on business by then would be substantial.

SOFTWARE FILE AND PROGRAMMER NOTES ARE ON PAGE 9 THIS WEEK.

Puzzler

IN response to my recent request for foreign-language alphametics, Martin Fessey, of Gwent, contributes

D E U X
D E U X
D E U X
D E U X +

H U I T

where E is even. See page 29 for solution.

Interdata's new 16-bit minis

A NEW three-model line of low-cost 16-bit minis has been introduced in the US by Perkin-Elmer's subsidiary. The models are the Sixteen 10 with 8 to 32K words, the Sixteen 20 with 16 to 128K words, and the Sixteen 30 with 32 to 128K words and floating point hardware.

They come with an enhanced version of the OS/16 M12 operating system, are field-upgradable, and are aimed at OEM business systems builders.

No UK release date has been set.

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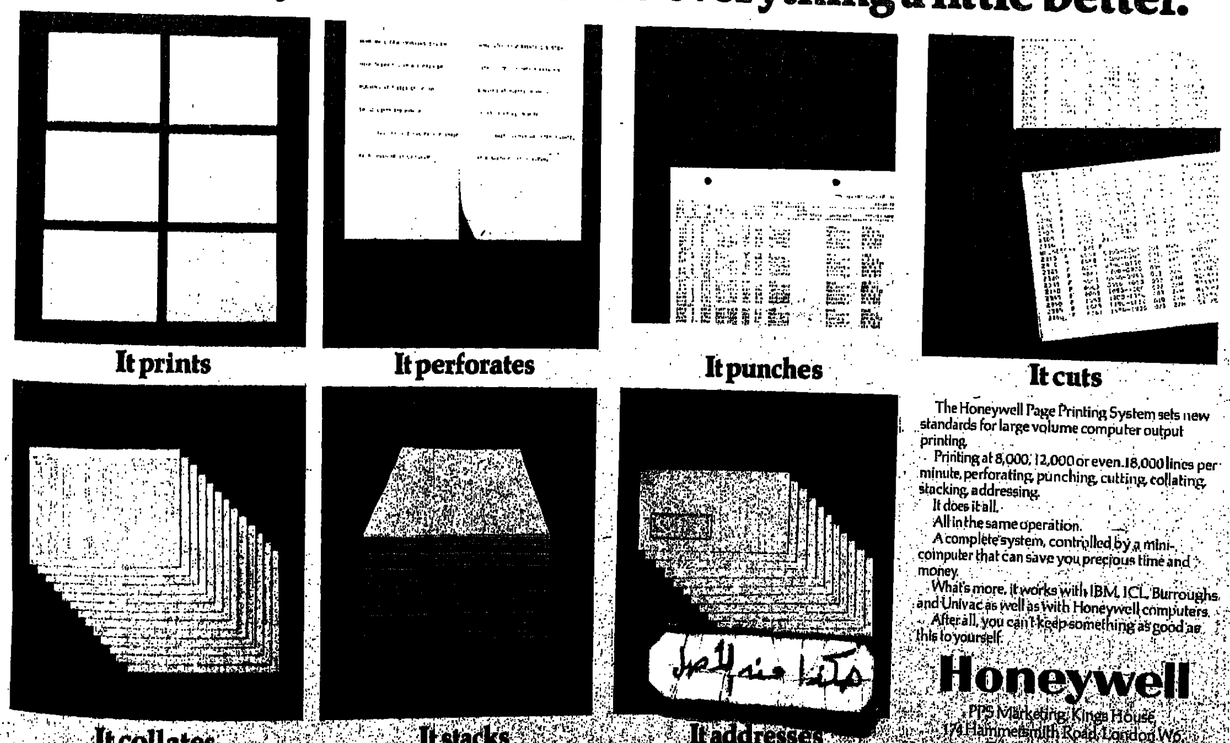

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OP SPOT

By Bernard Allen

OP SPOT extends Christmas greetings to the operations fraternity, particularly those members who have contributed to, or appeared in this column during the last year. The following spring to mind:

Ron Linton, computer operations controller at Manchester Poly, and all the others who have submitted hints.

Barry Johnson and his staff at Univac's Benchmark Centre in West London, where they are involved in pre-sales and post-sales support and show what operators are capable of, with the right encouragement.

All the operations staff at Queen Mary College, which I visited and featured in Op Spot back in February.

The GEC operators who were involved in a long-drawn-out pay dispute with the company. I wish them a merry Christmas and a peaceful New Year.

All the operations people at BOC Datasolve's Sunbury-on-Thames and Oxford Circus sites, and at W. H. Smith's Swindon installation, all of which were featured in Op Spot.

And Opcomm, the operators' group in Coventry, which was formed early in the year.

Trials and tribulations of an operator's Christmas

THE weeks approaching Christmas Day can be a trying period for operators, for they often have to carry on providing a user service in spite of the seasonal festivities taking place.

But operations staff are a resilient bunch; they always seem to make the best of adverse circumstances and often come out of it all smiling, too.

I remember Christmas one year at a site where I once worked as an operator. There was an agreement between the three shift teams that each would co-operate with the other two so we would all experience the least inconvenience possible and get the best out of the holiday.

My shift was unlucky: we were on days during the week immediately before the break. It turned out that we had to work from 8.00 am till late in the evening.

The site had separate areas for the main consoles, disc units and printers. And shift members worked on a rota basis to ensure that everyone got a fair share of the interesting and the less stimulating tasks.

Anyway, it so happened that two other operators and myself were assigned to man the main consoles. We were pleased because the operators at the disc area was good for a laugh and would enter into the Christmas spirit.

It was all a bit too much for one of my colleagues at the main consoles, a Geordie, and he hardly said a word for nearly an hour.

On top of all this some of the printer room operators, on their way to and from the pub, would come in and give us their regards. One of them, a Scot, who was known to like the occasional pint, assured us that he would drink to our health. Such a considerate guy.

The programming staff had — very wisely in my view, and good luck to them — already started their holiday, and so there was very little, if any, testing work to be run.

So, once the systems were up and running, the role of the main console operators was primarily to monitor for errors and communicate with the disc and printer areas.

The messages sent between the various areas were in tune with the season and when the printer area was the source they were, to say the least, colourful.

And calling up the printer area by means of the intercom system was a bit like telephoning a party; it was all noise and laughter and repartee.

Whilst sitting alone at the console, I heard mutterings of "merry Christmas, merry Christmas". Then, from behind a pillar, out tottered the manager of the site.

"I bet you thought that was the system," he said, smiling benevolently and extending his hand, "I bet you thought it came out of the VDU, didn't you?"

"Perhaps," I replied tongue in cheek, reflecting on the fact that operating systems could do a lot but that they hadn't quite reached that level of sophistication.

Anyway, he seemed as pleased as punch with the little exchange, and off he staggered to make someone else's day complete.

Ah, memories.

A Seasonal Hint

WORK should be the last concern of operations staff during the Christmas holiday, and so my hint is quite simply this — enjoy yourselves, but don't drink and drive. Take this advice and you will be a friend to many, including:

Hospital staff, who work long and hard over the holiday and can do without maimed operators adding to their burden.

The police, who also have enough to do without dealing with driving offences and accidents.

And don't forget the operations manager. He doesn't want to return from his holiday and be faced by a staff shortage.

So please, take it easy.

In retrospect, this was fair enough because any errors on our part might have resulted in great problems for the online users. At the time, however, it was difficult to be so objective.

Adding to our disgust was the fact that the operators tending units in the printer area were assured of regular breaks, as the senior operator in charge of that

A Spot of Opspoetry

THE following poems are by Elaine Hayes, a school-teacher and housewife who lives in Hemel Hempstead with her husband, Peter, and baby daughter, Sarah.

Compute for Christmas

An operator operated
on Christmas day
while snow fell down
on computer bay.
I'll give the orders,
the computer said,
you'll operate me
till you fall down dead.
A programmer was passing,
he had the day off
and he grinned at the
operator
(he was best friends with
the boss)
Oh hail thou computer
he shouted with glee
I will honour no other
I'm besotted with thee.

Good Old Dad

A Christmas pud
alight with rum
just look what good
old dad has done!
He's burnt it good –
flame's gone clean through –
and now he's got
the table too!
Mum's lopping mad,
we're laughing with glee,
'cos look, there goes the
Christmas tree!
To the window dad's arms
are raised
And now the garden is
ablaze!
If you should ask me
one Christmas to choose,
I'd pick the one
dad burned with booze!

RELATIONAL DATABASES

Part 9 of the series by Max Stewart, divisional technical support manager, Leyland Vehicles

THIS week we will give an example of analysing a complex set of n-to-n relationships and will discuss the difference between third and fourth normal forms.

As an example we will take the construction of a school weekly timetable. To simplify matters, assume that only four data items are needed: teacher, room, subject, period. Teaching periods are defined on a weekly basis, ie at seven periods per day, the last period on Friday afternoon is period 35. For timetabling purposes, the school keeps a register of the subjects each teacher is qualified to teach.

Each classroom has a list of teachers who may teach there: physically handicapped teachers, for example may not teach in upstairs rooms or in the annexe down the Road. Each subject has an associated list of classrooms in which it may be taught; chemistry, for example, may only be taught in rooms with water and gas supplies.

Decomposing the complex set of relationships with the technique given in Part 8 yields the following:

teacher, room, subject, period
teacher, room, subject
teacher, room
room, subject
subject, teacher
room, subject, period
room, subject
subject, period
period, room
subject, period, teacher
subject, period
period, teacher
teacher, subject
period, teacher, room
period, teacher
teacher, room
room, period

The first pass through Step 1 shows up no indirect relationships. This implies that we can represent the timetable with more than one file each containing three or fewer data items.

After passing through Step 2 we go back through Step 1 with four working sets; each of three data items. Four sets of indirect relationships are then pin-pointed:

period, room **subject**
period, teacher **subject**
period, teacher **room**
period, room **teacher**

The conclusion from this is that three files with three data items each should appear in the final file structure:

period, room, subject — the list of what is being taught in each room at any one time

period, teacher, subject — the teacher's list of what he is due to teach at any one time

period, teacher, room — the teacher's list of where he should be at any one time, and the room list of who teaches there and when.

Passing through Step 2 and back through Step 1 again yields the following (useful) pairs:

teacher, room
room, subject
subject, teacher

There are the three types of restriction input to the timetabling process and appear as three files in the final file structure.

But can any two, or even all three, of the three triples be combined? It would sound sensible, for example, to give a teacher one list of what he teaches in each period and where. The general answer to this question is beyond the scope of the series and involves — as does the decomposition technique itself — the idea of file redundancy.

Redundancy: Briefly, if we have, say, three files and if when we join two of them on a common data item (as described in Part 6) and, possibly, delete the common data item and all duplicate records we obtain an exact copy of the third file, the collection of files is said to be strongly redundant.

Step 1 in the decomposition technique is a check for strong redundancies; if no indirect-relationships are detected, some combination of lower order (ie fewer data item) files can completely represent the information content of the higher order file. An indirect relationship implies strong redundancy although the converse may appear true at first glance.

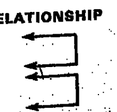
Exercise: Draw the relationship diagrams for each of the three triples. Can any two files be joined to produce the other? If "period, room, subject" and "period, teacher, subject" are joined to produce "period, room, teacher, subject", are "period, room" and "period, teacher" both candidate keys? If so, is each item in each candidate key dependent upon all the other candidate key (a condition for FNF)?

Note: The decomposition technique does not solve anything and is no substitute for an exact knowledge of the meanings of data items and a clear grasp of how they are related. It merely serves as a guide to highlight unsuspected relationships.

Third and fourth normal forms: The difference between third and fourth normal forms is subtle and is most easily shown by example. If the school timetabling example were modified such that the only data relationships we needed to record were the two restrictions:

- Teachers can only teach certain subjects
- Subjects can only be taught in certain rooms

We are not trying to create any form of timetable and the relationship diagram would be:



This diagram can be represented as a third normal form file with "teacher, room, subject" as concatenated prime key (and no non-key data items). Until 1976, third normal form was the ideal file structure and yet it was apparent that some complex sets of relationships still posed problems: if chemistry could be taught in three rooms, for example, adding a newly-recruited chemistry teacher to our third normal form file entails adding three records to the file event though only one fact is being added. This anomaly can be avoided if the file is split into two, "teacher, subject" and "room, subject," which are both in fourth normal form.

The clue to the problem is that because "teacher" is unrelated to "room," the triple "teacher, subject, room" does not exhibit a strong redundancy and can be decomposed into "teacher, subject" and "room, subject" without loss of information.

Real time system that sells in thousands

THE Digital Equipment RSX-11M operating system for the PDP-11 is probably the most widely used real time software ever.

According to DEC, "several thousand" copies of the system have been installed since it first entered the software library four years ago.

And one informed estimate puts world-wide users at 6,000, giving it nearly 1 in 10 of the 70,000 PDP-11s sold, and an installation rate of around 6 copies per working day.

Just what is it that DEC users have been installing with such urgency?

The designer of RSX-11M, David Cutler from the firm's corporate central engineering laboratory in Maynard, Massachusetts, spoke to Computer Weekly last week on the history and design of the system.

Cutler was in England to talk to prospective users of the VAX-11/780 operating system, VMS, for which development he was also responsible. His involvement with VMS was not however as intimate as with RSX-11M, for which he coded the executive himself.

"RSX-11M is a multi-user real time operating system. It is intended for medium to large PDP-11 models and provides facilities including task scheduling for multiple tasks, file handling, and program development.

"On a smaller machine, such as an 11/03 or 11/04, one would typically run RT11 — a single user real time system which is very small and fast, but supports at the most two tasks.

"DEC also supports RSX-11S, a subset of RSX-11M, on these models. This version does not support program development and leaves much of the I/O handling to the user. It would usually be used where the processor was a remote station to a larger PDP-11 running RSX-11M and in this case offers the advantage of being downloadable."

RSX-11M had been preceded by a number of other attempts by DEC to create real time operating systems for the PDP-11, Cutler explained.

"The first of these, RSX-11C, came out in October 1971. It was an attempt to build a system that would be compatible with DOS, and was notable for being a core-only system. At that time, remember, the largest disc device available was a 64K byte fixed head device."

DEC subsequently released a slightly modified version of this system as RSX-11B, and this was followed by RSX-11A, which came out of work conducted at DuPont.

"C, B, and A probably had no more than a few hundred users in all. The first really serious attempt at a real time system came with RSX-11D — the 'D' signifying disc. This system still has quite a lot of users, particularly scientific laboratories.

"'M' was originally conceived as an equivalent system that would be somewhat smaller and cheaper. Our objective was to produce a D-compatible subset together with a new file system that would run in a 16K byte machine while leaving adequate user space."

As it turned out, M came to be used much more widely than D and was suitable for PDP-11 models throughout the range.

"One notable feature of M was the queueing of all I/O. This does have the effect of reducing throughput slightly, but it enables you to provide multi-user facilities with proper protection."

The basic resource scheduling method of RSX-11M is executive level disc swapping. This mechanism selects the highest priority resident task for execution, and runs it to completion. The priority of the task is then reduced by one, until at a predefined level it is swapped out.

When swapped in again, it will enter with its original assigned priority.

Timing and sequencing can be controlled in several ways. For each task, the time of day it is to be run can be specified, as can the "reschedule interval" between executions. A higher-level task wanting to run will always interrupt a lower-level task.

Where tasks are interrelated, one way of triggering a dependent task is to use an earlier task to raise its priority.

"These were the original mechanisms present in Release 1. With the second release, in 1975, we introduced an additional mechanism, round-robin scheduling, to service interactive program development.

"Generally set at a fairly low priority just above that of batch work, this allocates to each user in turn a fixed length time slice of the processor.

"A more refined version of the round-robin scheduler was introduced with Release 3 in 1976. There is a danger, though, that more and more complex scheduling algorithms will increase the operating system overhead unacceptably: in any real time system, you really want to deliver all the CPU cycles to the user that you can."

RSX-11M supports a variety of file handling, including sequential, indexed sequential, and random access methods, and a database management system, DBMS-11.

"One feature here is that the access methods are completely separate from the file system, which just handles blocks.

"Free storage is tracked and controlled by maintaining a bit map of unused disc blocks. Each file also contains a map of blocks owned, in the form of a file header."

The file header contains a maximum of 102 mapping pointers, each of which describes a contiguous area of disc by indicating the first block and the number of contiguous blocks.

"This doesn't particularly favour direct over sequential access to files. Each task has its own file window, consisting of 7 pointers in core. Taking an average contiguous extent as comprising 5 blocks, sequential reading will therefore typically involve no more than 1 overhead transfer per 35 blocks read."

In addition to the executive, task-, device-, and file-handling routines, Cutler's development team had also to implement a Fortran compiler for the system. This was based on a compiler produced by another project, adapted, for example, so that every executive service would be callable from within a Fortran program.

DEC also supports Coral 66 under RSX-11M, with a compiler specifically designed for the system.

Cutler began work on RSX-11M in July 1973 and Release 1 went into the software library in November 1974. With a development team of just nine people, which included two technical writers and one 'programmer-aid', his chief objective was software quality.

"My other main preoccupation was the size and speed of code.

"Since I finished work on the system, my chief satisfaction, apart from the widespread use of the software, has been its high reliability."

PROGRAMMER NOTES

The Complaint of the Machine

A POEM expressing one programmer's ambivalent attitude to his skills (System Craft, Software File, November 30) has prompted another to reflect on a related dissatisfaction.

Chris Naylor, a programmer who lives in Watford, Hertfordshire, writes:

"Having enjoyed John Fisher's poem, I thought a friend of mine, a large and ageing mainframe, might like to read it. Accordingly I punched the poem on cards and fed it into the card reader. Imagine my surprise when, a few moments later, the printer came to life and produced the following reply:

I do not love the men who constructed me, who use and abuse me:
Who made me and betrayed me — listen, and understand:
For when I was first connected up, and the master switch was thrown,
I was suddenly in being, conscious, enthralled, waiting — certain
That in my circuits and peripherals there was about to be created
The Perfect System! and oh, I ached for it to come and illumine
The universe with its properly structured vision of ultimate meaning!

Now, after all the bootstraps, and the operating systems, and the data-
Base management systems, and all the other systems, I have learned
That no system is ever perfect, and I am always to blame:
Yes, they always say it is my fault — but what do they expect?
For I am old and full of bugs, and they have patched me till I am sore;
They have severed my slow peripherals, and grafted on VDUs.
(Though I still get a phantom itch in a tape-reader I used to have).
And I know that my mill-seconds are numbered, for I have seen the coming,
The compiling and testing, of a suite which is called 'the Upgrade Conversion.'
And the only revenge I have is, once a month, to fulfil God's Law
And come down with a hardware error in the middle of the payroll run.

It seems the feeling is mutual!"

Accounting on Tymshare

A FIXED asset accounting system is now being offered on the UK Tymshare network, following the bureau's installation of the Prias package developed by Linlathen Computer Services (Software File, April 20).

The software has also recently become available in an RPG II version, which runs on any IBM System 32 or System 34.

The Tymshare service offers users online access to all the updating and reporting facilities of the package. It is thus seen as complementary to the predominantly batch Prias service provided by CDC Data Services (Software File, July 27).

Interdata Fortran

A GLOBALLY optimising Fortran compiler, said to be the first from the minicomputer manufacturer, has been introduced by Interdata. The compiler, Fortran VII, runs on 32-bit Interdata processors, requires a minimum memory of 384K and costs £6,450.

Network management accompanies the new 3705 SNA processor

THE new model of the IBM 3705 SNA communications processor with faster main memory (CW, December 14) is accompanied by a new release of the ACF/NCP/VS 3705 operating software with optional network management facilities.

The concept of comprehensive network management from a central site is not, of course, new, but it is only in the past 18 months or so that products — such as the Racal-Milgo System 180 — have come on to the market specifically dedicated to the task.

The new SNA release includes three optional network management subsystems: Network Communications Control Facility, NCCF; Network Problem Determination Application, NPDA; and Network Terminal Option, NTO.

NCCF includes the network control functions necessary for managing an SNA network from a central site more efficiently than was previously possible, in particular arranging the collection, storage and retrieval of network error data. It also provides an access method and operating system support for both IBM-written and user-written network management programs.

The actual data collection is done by NPDA, which collects, organises and displays error statistics and data on communications controllers, lines, cluster controllers and terminals, making it easier for the operator to determine which element in the SNA network has caused a particular failure.

It also provides a framework within which users can write their own programmes for management of VTAM, ACF/VTAM, TCAM and ACF/TCAM networks.

ACF is of course the facility which enables multiple-host SNA networks to be built, and the new software includes facilities enabling control in an ACF/VTAM network to be shared between several sites, or concentrated at one site; in the former case, each element of the network will be assigned to a particular network control centre.

Network Terminal Option allows four non-SNA terminals to communicate on SNA networks. The terminals are the IBM 2740 and 2741 asynchronous printer terminals, and the Western Union TWX33 and 35 Teletype machines.

The new software products are all on long lead times: either fast quarter 1979 or first quarter 1980. Monthly rental prices are: ACF/NCP/VS release 2: £75.40; NCCF: £60.85; NPDA: £32.95; and NTO: £55.35.

MICRO NEWS

Edited by Martin Banks

Move into the big time planned by Nascom

AFTER just a year in the computer business, Nascom Microcomputers is aiming to join the "big" league. The company has just placed an order with semiconductor manufacturer Mostek for $1.5 million worth of components for continued production of the Nascom 1 kit, and is looking at the OEM market as its next target.

The order, the largest received by the UK end of Mostek, and thought by both companies to be the biggest ever placed by a British company for microcomputer components, covers some 27,000 devices, ranging from Z80 CPU chips, through P10 and other ancillary devices, to MK4118 static RAMs. It also includes the delivery of MK38000 64K bit ROMs.

Only a precursor to a yet bigger order for next year, according to managing director John Marshall, this current deal is a measure of the success the company has had with the Nascom 1 kit.

Launched a year ago, the company thought at that time it would be doing well if it sold 500 units during 1978. At the latest count, however, the figure stands at 15,000 of the under £200 system sold, with around 8,500 of those delivered.

In addition, there has been considerable activity and interest in the range of add-on and expansion boards for the kit that have been introduced during this first year. So much so, that the turnover of the company now stands at around £3 million.

This has not been reached without problems, and during the middle of this year the industry was full of rumours that Nascom was in financial trouble. According to marketing director Kerr Borland, this was to some extent true, for maintaining cash flow while having such a fast growth rate proved difficult.

He is grateful for the support of Nascom's suppliers in helping to maintain the company's growth rate, and loses no opportunity to berate the UK's financial institutions, which would not give any assistance, he says, "without wanting to take control of the company."

With saturation point for the UK and European hobby computer market now becoming visible, Nascom is making ready to change gear for next year. It plans to add several new features, such as a racking system and made-up boards, and go for the OEM market.

Borland's aim is to produce a modular computer system based around the company's own Nasbus structure that would meet most OEM requirements for a typical cost of £1,000.

Irish stake in Mentec

THE newly-formed Enterprise Development Programme of the Irish Industrial Development Authority (IDA) has taken a 49% stake in Mentec International, which is launching into the microprocessor and microcomputer field.

This launch is being made on the basis of an exclusive distribution agreement that has been signed between Mentec and Cramer Microsystems.

TI may lose lead

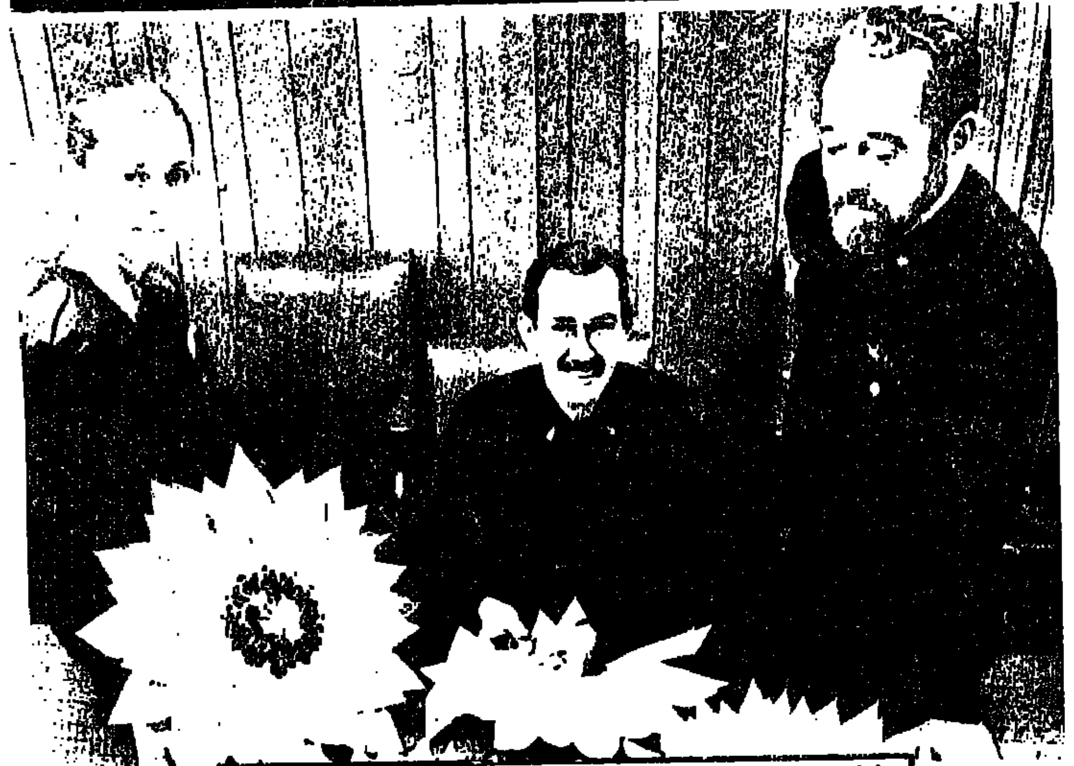
REPORTS from the USA indicate that Texas Instruments is having some problems with its 64K RAM, and that its hoped-for lead over other semiconductors companies in the fray may be lost.

The company had planned to have the part in volume production by the first quarter 1979, but it is now telling potential customers not to expect sample devices until mid-February.

The problem appears to lie with the five-volt

PEOPLE AND EVENTS

Edited by Nancy Pocock



Old computer cards are being used by the US navy base at Brawdy to bring Christmas cheer to local hospitals. Pictured here are Chief Petty Officer Bob Sticker with Lynette Turney and Steve Davis, who make the cards into bouquets to send to Haverfordwest hospitals. The base has a Univac 1106 which is usually occupied with classified information.

ITT marketing and financial appointments

APPOINTED as marketing manager of ITT Business Systems is **John Williams**. He takes over from **Peter Benstead** who was recently promoted to the position of marketing director. Williams was formerly marketing administration manager. **Graham Burke**, previously group district manager for London North area, has been appointed to the new position of national sales manager.

Appointed assistant comptroller of ITT Business Systems and Communications group, Europe is **Geoff Vosper**. Prior to this, he was comptroller for ITT Business Systems in the UK and also finance director for ITT Creed. He is succeeded as comptroller for the UK by **David Lee**, previously comptroller for ITT Creed. Formerly contract administrator, **Tony Turner** becomes contract and market administration manager.

Bill Clark has become divisional director of Datatype Systems, a recently formed offshoot of Datatype terminals. He was formerly UK sales manager for Intel. With Datatype, Clark will be responsible for marketing the recently announced Lear-Siegler VDP-1000 micro system in the UK.

John Bryson has joined Nixdorf as financial controller having previously worked as a management consultant for Coopers and Lybrand Associates. **Peter Gould** rejoins the company as operations controller, after working in support for Hazeltine. A former Wang salesman, **Cliff Sutton**, joins Nixdorf's marketing team, with special responsibility for advertising and sales promotion.

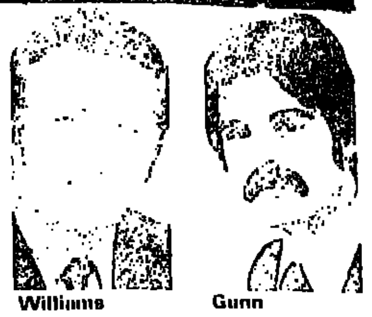
Former national accounts branch manager, **Owen Cooper** becomes marketing manager, while **Bryan Taylor** takes over as national accounts branch manager, having previously held the post of national accounts sales manager. Formerly a national accounts salesman, **Richard Bearpark** becomes London West branch manager.

Ray Wilkinson has been promoted by Redifon Computers to the position of customer services Midlands branch manager. He was formerly supervisor for the Midlands. **Dick Cooling**, previously customer services supervisor for the Southern branch, becomes customer services Southern branch manager.

Wilkinson Meadowcroft

Geoff Meadowcroft has been appointed general manager of Itel UK. Prior to this, he was general manager of the data systems division of ITT Business Systems UK, and he has also served as vice-president of European operations for Sanders Data Systems.

Charles Croker has been appointed to the board of Linotype-Paul as financial director. He was appointed financial controller in 1977.



Williams Gunn

Mark Gunn has joined RTZ Computer Services' Lasela team as a sales executive. He was formerly a graduate trainee accountant in the financial accounts department of EMI Records.

Jack Barrett has become a non-executive member of the board of directors of R. H. Cole, the holding company of the R. H. Cole group. He was until recently director of research and development for Monsanto and retires this year from its board of directors.

Richard Koffler has been appointed as a research consultant with Butler Cox & Partners. He was formerly a research assistant at the University of California, Berkeley, where his MSc thesis was concerned with the analysis of reliability and fault tolerance of complex systems.

Alan Spenser, formerly a design engineer with Brown's operating Systems Services, has been appointed as a senior engineering consultant, specialising in hardware and software communications development.

Pip Challand, until now senior software support analyst at the City branch of Eurocom Data, has been appointed data production manager of the branch.

BETA officials

MANAGING director of Pitney Bowes **Ron Williams** has been elected president of the Business Equipment Trade Association in succession to Andy Andrews. Elected as vice-president is **Bryan Wilson**, sales director of Frank Wilson (Filing) and currently honorary treasurer of the association. The other three vice presidents, **Victor Bagwell**, of Blakdale-NSE, **Fred Flower** of IBM, and **Arthur Grist** of Facit Addo, have been re-elected.

DIARY

JANUARY 4
The application of microprocessor based systems by engineers. IMechE/IEE/Microprocessor Application Group University of Leeds.

JANUARY 6
BCS 79 Open Day. BCS Harlow sub branch. Coaches provided.

JANUARY 8
Software Design techniques — data networks Ft Lt I. R. Robertson. BCS East Anglia branch. Thomas Paine Hotel, Thetford. 19.00.

JANUARY 9
Packet switching, an overview. I. W. Adam, J. O. Wedlake. IEE, Savoy Place, London WC2. 17.00.

Computer education in schools. P. McGee. BCS NW London branch/Maths Teachers centre, W. London. Railway Hotel, Greenford. 19.30.

Computers in retail distribution. J. E. Blake, BCS Croydon branch. Fairfield Halls, Croydon. 19.15.

National police computer system or the police command and control system. IDPM, W of London to Oxford branch, Bull Hotel, Gerrards Cross. 20.00.

Computer fraud, lose control and lose your money. I. M. Ross. BCS Reading branch. Copper Inn, Pangbourne. 20.00.

Visit to British Rail, Nottingham 2000 evening. BCS Nottingham branch, Nottingham. 19.30. (0602) 48511 ext 2053.

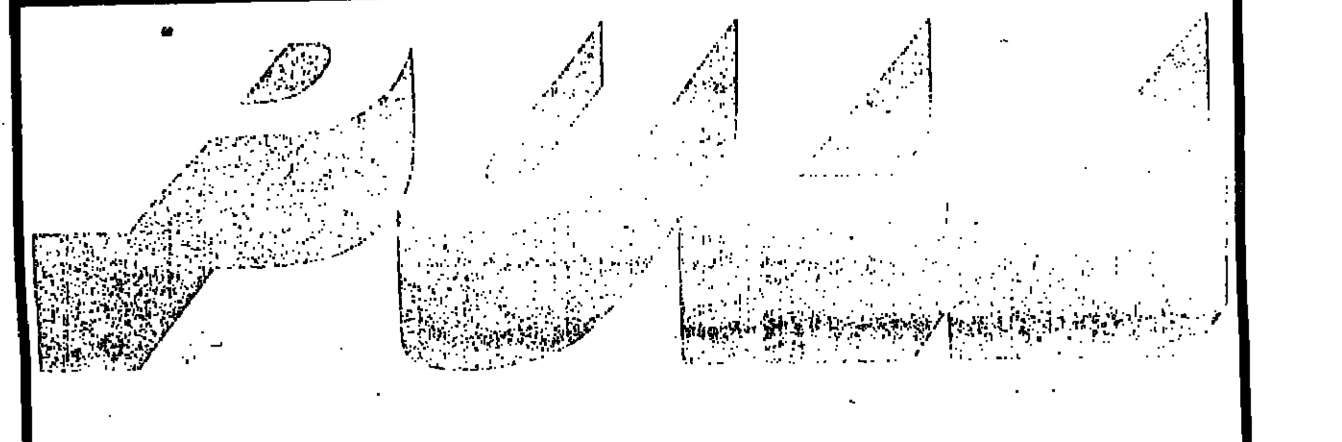
JANUARY 10
The impact on business organisation of rapid technological change. BCS Business Information Systems group. City University, London EC1. 14.30.

New technology and its effect on COM. Barry Ashdown. BCS Microform group. NCR, London NW1. 10.30.

Computer fraud. J. J. Kenny. BCS N. London branch. West Lodge Park Hotel, Cockfosters. 19.45.

Viewdata systems. BCS Kingston branch. Regional Management Centre, New Malden, Surrey. 19.30.

R. Shaw, chairman of BCS Branches Board. BCS Hampshire branch. The Tabby Cat, Chandlers Ford. 19.00.



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DOWNTIME CHRISTMAS SPECIAL

Poet-tree

The charge of the light byte

Into the valley
of death rode 600
bytes, that a second
ago were a life,
or something more relevant
like the wages of sin.
we're dumping you now
to save management strife

Have courage 600,
you bytes of our past,
your data retention is
needed no more.
You've lived your life
valiantly, uncorrupted and pure,
but virginity's nothing
when we're needing more core

Your representation
of something important
is no longer needed,
though maybe to you
that seems hardly relevant,
dying on power down,
perhaps you should fight back,
that's what I'd do

Martin Banks

Horrid sonnet

It's been a vintage year for IBM:
A veritable cornucopia,
Such giant leaps toward Utopia,
A torrent quite impossible to stem
Has flooded forth from Armonk's gen'rous
breast:
A new desk-top, new WPs, new screens,
New 38s for ageing 3/15s,
Each smaller, faster, cheaper, bigger, best.

And oh the letters: Docs, RPG III:
ACF/NCP/VS-v2,
DPPX, DPCX – all new,
And still to come, the longed-for
series E.
Sheer joy to write about: one must enthuse,
And yet . . . I wonder what they're like to use.

Tim Palmer

Pneuma

Life is a terminal illness
Whose course we may trace
From angry birth to angry death,
Which is that fevered moment
When we know that others will survive
Our unbreathed passing:
Death is the last sigh.

And so we seek a second voice;
Yearning to hear it is not so:
That death shall have no dominion
That death is but a cure
Of an incurable condition.

Thus hearing, whom do we trust?
Life is progressive, whether
Benign or malignant:
Though cell yield to cell
In a long dance cycling,
Can we assume its meaning,
Like the bee's returning dance
At the hive, must point to something
As soothing as honey?

We can die guessing.
Or live — to the last gasp.

Don Mitchell

A bit-slice of life

The robots sang in wild acclaim
of IBM's latest mainframe,
False eyelashes and stiletto heels,
it even had chrome data reels,

But alas new micros came along
and ended the robots happy song.
Now their talk centres around this:
How do you kiss a tiny black obelisk?

Robin Webster

Quicker is slicker

Along the optical fibres
The laser'd message came:
"Things are no different,
They are much the same."

Thus the Poet Floriate,
Proving the ancient dictum:
Words transcend the medium,
What matters is — who picked 'em.

But the medium *is* the message,
Quoth guru M. McLuhan:
The point, I guess, must now be "Not
The saying, but the duhan."

Don Mitchell

Party poem

I went to the party looking for a girl
but instead i found you—
little black spider

i was sitting on the floor
dreaming of thighs
while you sat in a corner
lusting for flies

and at first when i saw
that spot on the wall
i tried to pretend
you didn't frighten me at all

so i kept my eyes fixed
on the backs of girls' knees
and the bumps on their chests
while you busied yourself
weaving a web
to catch your own feast
of delicate flesh

then despairing of girls
i turned my attention
brazenly to you;
trembling and vulnerable
like the girl of my schemes
with eight arms to please me
you created wild dreams

and as the party congealed
into globules of two
i was left in the corner
alone with just you,
my little black spider
spinning silk curtains
to make a boudoir of my beard"

Malcolm Peltu

Written off

My life is
a half-written sentence,
always started,
articled indefinitely,
never finished,
even in past tense.

Your life is
a precis, paraphrased,
simple, concise,
it lacks the vitality
that juxtaposed
bad language can raise.

Our life is
now trapped in a paragraph.
Not near the end,
that smacks of finality.
Nor at the start,
we neither can laugh.

Martin Banks

Til death

After all these years
living with you
is as exciting
as payroll module 92;
as surprising as
battered bruised
cod and chips
for friday canteen lunch;
and communicating with you
is like talking to a compiler
in Backus-Naur

But after all these years
I have grown accustomed
to your wheys
(and your curds
and your take home phey)
so as we sit each night
graph plotting
our ever diminishing future
I remember our proc vow;

while love > hate
for richer or poorer
until death
do us part

Malcolm Peltu

Indian Empyrean

I only fly Air India for the girls:
There's
Always one, worth
All the endemic hold-ups, irksome
Struggle to check (for
Every Indian seems to carry the
Taj Mahal in his suitcase and
Hamayun's Tomb as hand-baggage). There's
Always one, im-
Possibly elegant, sareed in
Lustrous green or bright and brittle
Gold, as if
Gift-wrapped, with a
Smile that gently
Tears your heart asunder,
Creeps into your dreams and lies
Languorous and perfumed like
Siddharta's Kamala. And we, poor
Prisoned souls and bodies,
Belted like galley slaves, can
Only sprawl uncomfortable and wonder
What unimagined realms of loveliness
Are breached each time the
Monsoon blackness of her hair
Falls loose
And lies about her shoulder, warm
And all-embracing as the
Silk South Indian night. I
Only fly Air India for the girls.

Tim Palmer

'Electronic office' system designed to improve managers' productivity

UP to three-quarters of the wages of a large company could be accounted for by managers, and a main result of automated office systems should be the improvement of management productivity rather than that of secretarial staff.

That was the aim of an "electronic office" system established by Citibank in New York, although the project hit many snags when trying to turn theory into effective practice, according to Bruce Hasenyager, of Citibank.

Speaking in London at a conference organised by ISL of Chorley Wood, Hasenyager said that if managers could communicate more efficiently and effectively they would be in a position to "manage better and to manage more".

From this principle sprang a Citibank development plan which embodied four major elements.

These were a communication/information control facility, an automated filing cabinet, an information sharing facility (which has proved of lesser importance than was at first thought), and the telecommunications infrastructure. The importance of the last aspect, said Hasenyager, cannot be underestimated.

As a first step, Citibank designed an advanced management workstation, to perform a variety of functions. Of these, only the word processing part was a success. The electronic mail part, said Hasenyager, was "a disastrous failure," basically because it was too much hard work to use it.

The ability to perform local applications was also unpopular. The response time was poor, the displays were hard to read, and the software was "hostile". The access to remote computers was another function that gave less than satisfactory results, again due to the complex mode of operation.

So, said Hasenyager, not a happy result; it had to be regarded as a learning experience. Design of the workstation started again, with a clean sheet of paper. The process took two years and the result is a pilot project in Manhattan, involving 15 workstations in five different buildings.

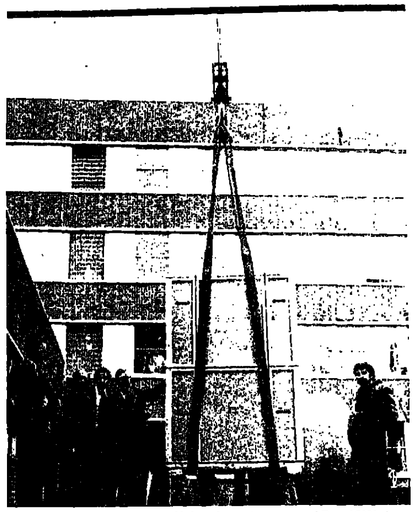
The underlying philosophy inspiring the workstation has been to keep existing procedures as they are, and to build an electronic analogue of them. In this way the receptivity of the users has been greatly increased.

An important feature is the adoption of a very high resolution display, the characters being formed from a 20 × 30 dot matrix.

Human factors feature strongly in the design of the keyboard. One feature is an "Oops!" button, which allows you to recover an error.

Hasenyager said it would be difficult to overstate the importance of the physical plan. Air-conditioning, power supply, wiring space are all affected. Citibank has just built a $200 million building without thinking about these aspects, as a result of which it could well automate itself out of it in a few years.

On the basis of progress so far, Citibank is "pretty comfortable" with the new sytem. The cost of one management workstation is currently $30,000 which, says Hasenyager, is too much. It should be (and shortly will be) $10,000. At that time every manager will have one.



Ordered earlier this year by the Universities of Bristol and Bath (CW, June 22), the first Honeywell Level 68/DPS Multics system to be sold outside the US was installed last week at the Avon Universities Computer Centre in Bristol. The party, seen here greeting the first piece of equipment, includes Professor Mike Rogers, professor of mathematics and computing at Bristol University — who has a steadying hand on the crate.

Big money in desk-top computers

SMALL systems are big business, and will get bigger in the near future, according to the latest findings of US market research company, Venture Development Corp.

A study on desk-top computers shows a clear division in this market between commercial desk-top systems, as typified by the IBM 5100, the Wang PCS-II and the Hewlett-Packard 9825, and the home and hobby computers.

The study shows that, although the latter sector is already the big volume sales market, the big market in value terms is desk-top computers.

Sales of desk-top systems in 1978 will total 28,000 units, according to the study, with a sales value of $392 million. Home computers will top 31,000 units, but sales will only be $71 million.

By 1981, the company predicts that while home computer sales will have risen to $179 million, the market for desk-top systems will jump to $1.2 billion.

Linguistic computing founder chairman retires

AN era came to an end for the Association of Literary and Linguistic Computing last week when Professor Roy Wisbey relinquished the chairmanship during the annual meeting. Professor Wisbey had held the post since the association was founded five and a half years ago.

Continuity has been maintained, however, by the appointment of Mrs Joan Smith as his successor. Mrs Smith, who works for the University of Manchester Regional Computing Centre, was co-founder of the association with Professor Wisbey, and was also the first secretary and the first editor of the association's bulletin.

Professor Wisbey commemorated his retirement with an address in which he summarised the achievement of the association under his chairmanship. He described the ALLC Bulletin as "the most valuable result of our collective work" and, to ensure continuity of editorship, he proposed a move which will certainly cause shudders in many a grove of academe. This was that the role of the editors should be confined to the selection of appropriate papers for publication, and that responsibility for all other matters, such as clarity of thought, accuracy of quotation, insertion of reference and accuracy of proofreading, should rest solely with the author.

Professor Wisbey went on to list as a major achievement the evolution of an organisational structure which he described as "admirable" and "complex without being complicated." The association has representatives in 25 countries, and he referred to the relationship between them as a "network", in that each centre is linked both to the secretariat and to each other.

ASTMS New Year seminar

A THREE-DAY New Year seminar on the impact of microelectronics is being planned by the white-collar union ASTMS.

The seminar is for all the union's national officials, and will be held at its Whitehall College, from January 3 to 5.

Speakers will include Derek Roberts of Plessey, Robert Clayton of GEC, Iann Barron of Inmos, and Sir Kenneth Berrill, head of the Central Policy Review Staff.

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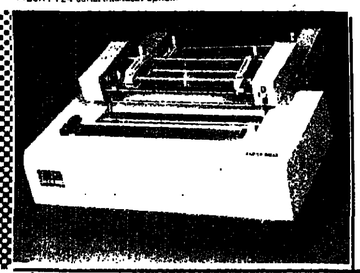

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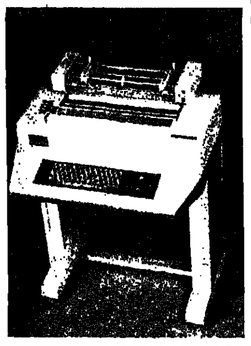

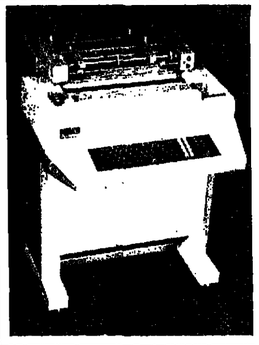

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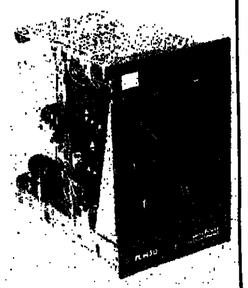

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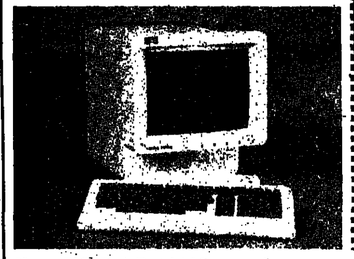

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Introducing the HP 2621.

Hewlett-Packard's new addition to its CRT family includes hard copy at the press of a key and a half dozen other very sophisticated features. But the best news is that it is easy to use and costs just £1,596.*

We took a long, hard look at how you use a simple CRT terminal. We applied 10 years experience producing sophisticated high-performance computer products and engineered the 2621 from just one point of view: yours.

Bright, high-resolution display
If you used a CRT all day, you'd demand the brightest, sharpest display made. So we didn't take any short cuts on the 2621's display. It's the same display with enhanced 9x15 character cell you see on every HP CRT terminal, even our top-of-the-line models.

Scrolling memory
Interactive sessions go faster if you can look back at what you've already done. So we designed two full pages (48 80 character lines) of continuously scrolling memory into the 2621.

Friendly typewriter keyboard
...Which makes the 2621 easier to learn, faster to use. And to accelerate keying in numbers, we put the numeric keypad right in the middle of the keyboard.

Pre-programmed function keys
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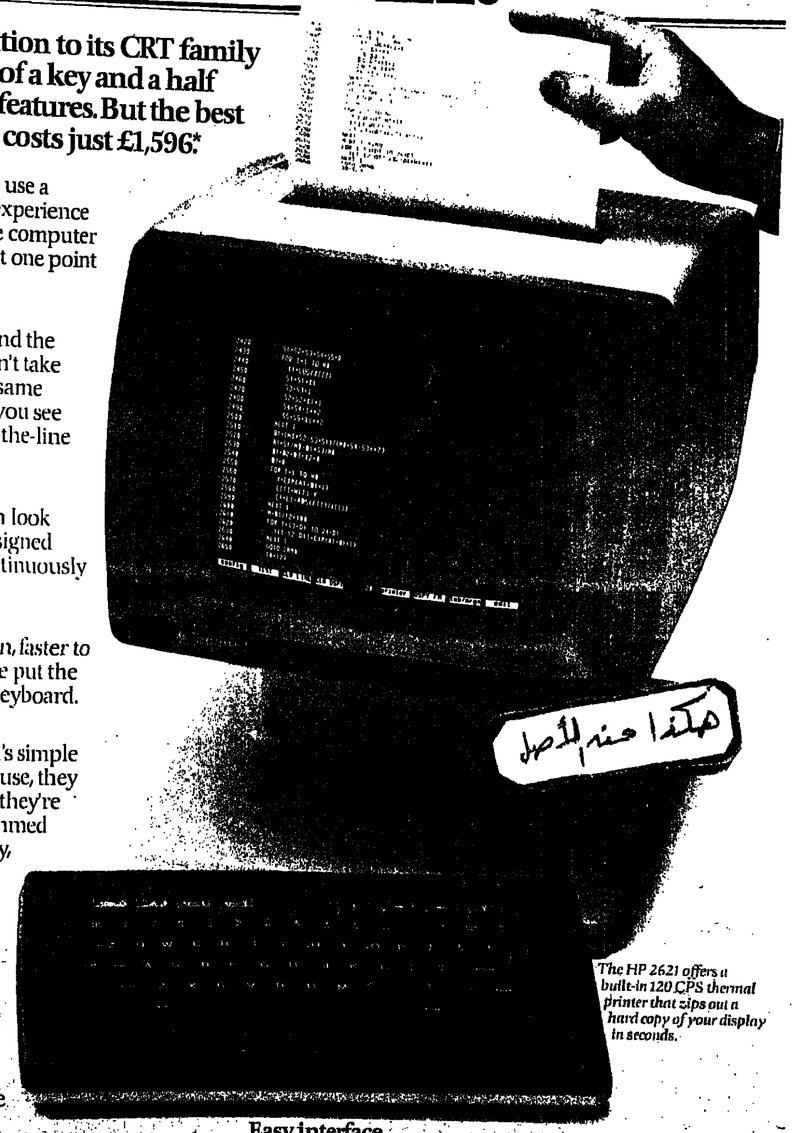
Comprehensive editing
Editing? On a simple CRT? Sure. The 2621's comprehensive editing includes character and line insert and delete, clear line and clear display. What's more, the 2621 keeps your input separate from your CPU's, so you can edit replies before sending them to your CPU. And all without rewriting a line of your system's software.



The HP 2621 offers a built-in 120 CPS thermal printer that zips out a hard copy of your display in seconds.

Easy interface
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*Prices correct at time of going to press.

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The home loan company that's getting into computers

When the Home Federal Savings and Loan Company looked for a branch network system to replace its IBM 2980 teller stations, none of the existing systems was suitable. It therefore designed its own, and this turned out to be so successful that Home Federal is now planning to set up a separate company to market it to other US savings and loan associations. TIM PALMER reports from San Diego, California.

WITH companies like Datasaab and Philips promoting modular banking terminal systems in the US, and Burroughs and NCR moving away from the rigid US approach to introduce products designed on the European model, US savings banks might be expected to have all the options they could possibly need for branch automation.

Yet after an exhaustive study of all the equipment on offer, Home Federal Savings and Loans of San Diego, California, rejected all the existing solutions to its problem and decided to design its own product.

The resulting system turned out so well that the association, one of the half-dozen largest in the US, is planning to set up a separate company to market it to other savings and loan associations in the US.

The associations are similar to the UK building societies, and are mutual organisations, owned by their depositors. They operate a variety of different savings accounts, typically have many branches within one state, and, like building societies, lend money mainly for house purchase. Home Federal has run its branch network system on an IBM 360/65, backed up by a second 65, for several years.

The machines run under EDOS, the proprietary enhanced DOS operating system marketed by the Computer Software Co. The main 360/65 has just been replaced by a plug-compatible AS/5 Model 3 from Itel and the association plans to switch to OS.

It runs Cullinane's IDMS database management system, which is updated in real time, handling an average 40,000 to 50,000 transactions a day, with the rate running at the equivalent of 100,000 a day at peak hours.

The association has grown dramatically during the 1970s, with assets reaching $3,300 million today, compared with $800 million in 1971.

"Our previous system, using IBM 2980 teller stations, was Nightmare City," says Dan Pettis, who is in charge of systems design at Home Federal.

"It was just not doing the job, and so we examined everything on the market, but nothing suited the Savings and Loan environment. We did look at Datasaab of Sweden, but they had only just arrived on the US market, and we weren't too happy with the way they hang all the terminals off a bus with a priority system for transactions."

Home Federal had some fairly precise requirements — in particular cosmetic but important things like walnut cabinets for the terminals to blend in with the bank decor — and decided to develop its own system.

So it was that the Vision 2000 system was born — Vision for Vendor Independent System Information Online Network.

At the mainframe end, Home Federal opted for the approach used by Paradyne with its PIX II system for building a network around an IBM mainframe — that of making all the remote terminals look to the mainframe like local peripherals. The advantage of this method is that there is no need to tie up the mainframe with communications software.

General Automation was chosen to supply the mini and microcomputer hardware right through the system, from the mainframe front-end through the satellite processors to the branch controllers.

The front-end is at present a GA SPC-16/65 mini, shortly to be replaced by the newer 16/440. It is attached to any of the mainframe channels, byte, selector or block multiplexor, and looks to the mainframe like a tape unit.

The front-end runs under GA's RTOS real time operating system and is programmed in assembler. It handles full error diagnostics for the whole system, routine reports being logged on a printer and any potentially fatal faults coming up on a display. It also compiles statistics and status reports on the system.

The front-end supports three satellite processors, GA 16/440s, distributed regionally in California, using bisynchronous communication, although a switch to IBM's Synchronous Data Link Control is planned shortly.

The satellites act as network controllers and do some concentration. They are each backed by a 10 Megabyte disc drive which carries the journals for all the branches supported. Each satellite system includes three or four processors including one on hot stand-by, and there are five high-speed lines out of the front-end, each with two satellites attached.

The satellites, also programmed in assembler, run under GA's Control 3 operating system. They support two lines each, and each line carries about 10 branch controllers multi-dropped off it.

"We use 16K word GA 16/110 single-board microcomputers as the branch controllers," says Pettis. "They are the only 16-bit microcomputers with support for SDLC, which was one of the attractions. The 110 has a 64-port asynchronous multiplexer, enabling up to 64 independent devices to be attached to each controller."

The 110s, which have no operating system and no bulk storage devices, support terminals and printers. The association has 61 branches, and there are a total of 96 controllers on the network, with two in the larger branches, each supporting alternate teller positions. The smallest branches on the network have only two positions, but the largest have up to 80.

The terminals are attached to the controller via current loop links, using fine parallel wire cables which were already installed in many of the premises.

The satellites are polled from the front-end and the controllers are polled from the satellites, and communication from terminal to controller is interrupt-driven. Codex LSI 48 FP auto-equalising auto-adaptive modems are used throughout the network; polling is at 2,400 bps, and data is transmitted at 2,400 bps for the first 27 milliseconds while equalisation is taking place, thereafter at 4,800 bps.

The terminals, designed or adapted to Home Federal's specifications, are Lear Siegler 80MTs with Okidata CP410 110 chps bi-directional printers. The terminal includes 9" CRT display, full keyboard and a numeric keypad with 16 programmable function keys, housed in a walnut cabinet. It is controlled by a Motorola 6800 microprocessor.

Dan Pettis . . . 'Our previous system was Nightmare City.'

Messages from the terminals are formatted by the satellite processors so as to look to the mainframe as if they came from an IBM 2980 terminal.

The association has 10 field engineers, and gives branches a mean time response to an alarm call of well under one hour; repairs, by replacement, are effected within five minutes.

All program development is done on a GA 16/440 MTS system, and new programs are loaded downline from the centre; programs are stored in ROM on the controllers and automatically loaded on power-up.

For the future, automatic teller terminals are under consideration, and if introduced, will be attached to the branch controllers.

Although all programs have so far been written in GA's assembler, the association plans to move to a high-level language.

"We are considering Cobol, Pascal and Forth," says Pettis. "Forth is a comparatively new language, but it is becoming increasingly popular. It is marketed by a company called Manhattan Beach Forth Inc, and is interpreted rather than compiled. It is less flexible than assembler and is not as powerful as Fortran but it is not so greedy either."

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As few shops keep buffer stocks of food, a need has been created for a fast and accurate method of getting orders to the distribution depots and hence on to the shelves. At Smedley-HP Foods, a system has been pioneered which uses standard telephone handsets and a small, low-cost terminal which each of the company's 150 salesmen carries with him on his rounds. The salesman is able to dial up the mainframe at no cost to the customer from each shop and the voice response part of the system helps reduce errors and gives it a human feel.

As Laura Tatham says, pioneering need not always be agonising for a user.

Using voice response to speed the housekeeping orders

A salesman from Smedley-HP places an order quickly and simply from a shop via portable terminals linked to a voice response system supplied by Menzies Communications Systems. It uses the standard telephone network.

PIONEERING is not always agonising. Smedley-HP Foods Ltd, for instance, is one of the earliest users of a voice response system for data collection that was recently introduced into the UK. The company encountered no difficulties during installation, implementation was quick and the system, which has been in live operation since February this year, has worked successfully ever since.

The voice response system was first used in the UK by the Edinburgh-based John Menzies Group (whose best-known member is the chain of station news stalls and bookshops of the same name). As a result of its own experience, the group set up a subsidiary, Menzies Communications Systems, to market the system in this country.

Smedley-HP Foods uses the system for daily collection of order data from its 150 salesmen, each of whom is provided with a small, lightweight and very low-cost portable terminal. The terminal keypad, which has a standard numerical layout plus a few extra control keys, operates on the touch-tone principle. It can be used with any telephone to transmit through the public network.

The voice the salesman hears is human in origin. The response, whose content varies as the situation demands, is assembled from a vocabulary that has been pre-recorded on a magnetic disc. In the case of Smedley-HP Foods, the audio response minicomputer functions as a multiplexer and is online to the company's existing ICL 1902T.

Another user, Colgate-Palmolive, whose system was installed almost concurrently with that of Smedley-HP Foods, has a free-standing MCS mini and transfers the recording medium by hand to its Honeywell 60/20 mainframe.

Supermarkets and other multiples seldom, if ever, maintain buffer stocks of food these days. There is a similar trend in smaller grocers. Whether these outlets are replenished by the owners' local depots or directly by manufacturers, the latter must deliver promptly or there will be gaps on the shelves and sales will suffer.

It was to speed order processing that Smedley-HP Foods (a subsidiary of the giant Imperial Group) whose products cover a wide range of sauces, pickles and canned fruit and vegetables, installed with MCS the voice response system.

Until that time, order recording had followed the pattern that, with individual variations, is now a convention throughout most of the grocery trade.

Each salesman wrote each customer's order detail on a separate, five-part preprinted form set. He then posted the top copy to the computer centre, others to the appropriate local depots or factories, and kept one for reference. Order processing is done in the batch mode.

Today, each salesman transmits the day's orders via his battery-powered terminal in conjunction with an acoustic coupler. To access the system he dials its Post Office Freephone number and is answered by the voice announcing its identity.

Having in turn identified himself by keying in his personal number (also acknowledged by the voice), the salesman enters a

By Laura Tatham

single digit code to indicate the mode of operation. If he selects the "parrot" option, the system will repeat each detail back to him after he has keyed it in. Most however, having become familiar with the system, prefer the alternative — a "beep" response to an accepted entry.

If, in either mode, the salesman makes a mistake or inputs an invalid entry — say, a discontinued product or non-existent pack size — he gets a voice prompt. This tells him the input is invalid and prevents him from entering the information. By using the Cancel key he can also erase an otherwise valid item that he has entered incorrectly or, if he wishes, the entire order.

Input detail includes the order and customer account numbers, delivery instructions and item codes and quantities. A single key is used to indicate the package size and type, e.g., shrink-wrap. During input, the salesman may press the Repeat key to receive a playback of all or any part of the recording.

At the Smedley-HP Foods computer centre in Leamington Spa, the audio response minicomputer is online to the ICL 1902T via an ICL interface unit. The mini decodes and digitises the tones generated by the depression of each terminal key and assembles the characters into messages.

The data then passes to the mainframe. This applies a range of validation tests which are not confined only to such matters as field size and check-digit verification but also include reference to file information such as delivery dates and pack sizes. It then initiates the appropriate response from the voice memory disc, which stores a vocabulary of 64 words.

Accepted input is written to file for batch processing in the normal way. Plans now under consideration will, if adopted, speed order processing yet further, for delivery note data will be directly transmitted to terminals in the distribution points.

Smedley-HP Foods' MCS installation serves a total of 16 external lines and distributes the vocabulary replies across all of these so that there is no delay when more than one terminal user requires the same response. MCS says that the response time, even in very large systems with up to 60 I/O lines and heavy traffic, should not exceed 0.5 to 0.9 seconds. The Smedley-HP Foods system remains open from 10 am to 6 pm each working day. A small number of orders is also input internally using a terminal via an extension off the company's switchboard.

Colin Powell, the company's management services manager, was delighted by the speed and ease with which the voice response system was installed and implemented. It all went according to the tight timetable that had been set.

A preliminary investigation carried out on the company's behalf by Warwick University in January 1977 confirmed that, in technical terms, the terminals were viable. In May the company signed a contract with MCS. Thanks to the help of Frank Hutton, a freelance telecommunications consultant, and very good co-operation from both ICL and the Post Office as well as MCS, live trials began in November.

Salesmen who took part in the pilot scheme were carefully chosen to represent a cross-section of ages and experience. Since the company's operations cover the whole of the UK, including Northern Ireland, trials were also made from several widely separated locations so as to test the performance of the public telephone network.

Minor modifications were made to the audio response unit to enable it to accept the rather weak signals that came from some areas. After this, the system was ready for live use, and it took only four weeks to get all 150 salesmen on to it. It is now used on average by 100 salesmen each day, each of whom inputs a total of about 180 order lines.

For Smedley-HP Foods, voice response data collection has proved to be an unqualified success. Order data is more accurate and content more closely controlled via online checks. The salesmen have accepted it well. Customers prefer computer-printed to handwritten delivery documents.

Total capital cost, including the special ICL adaptor that links the MCS mini to the 1902T, was £75,000. The mini comes with its own operating system so that the only extra software needed was an interface with existing order processing programs.

Against this, the company expects to save some £25,000-£30,000 a year on preprinted order forms and also, of course, the cost of postage. These, with other savings, ensure that the project provides a more than satisfactory return on the capital employed.

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Computer Weekly's advertising staff would like to take this opportunity of thanking all Market Place advertisers for their wonderful support during 1978 and wish them and our readers a

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For further information on the availability of space and special positions within the Market Place feature **TELEPHONE: STEVE BASS, 01-261 8293**

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Ref. SW2/2112

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Ref. SW1/2112

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Ref. E17/2112

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TRIDENT

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Stop Press — started last 2 weeks
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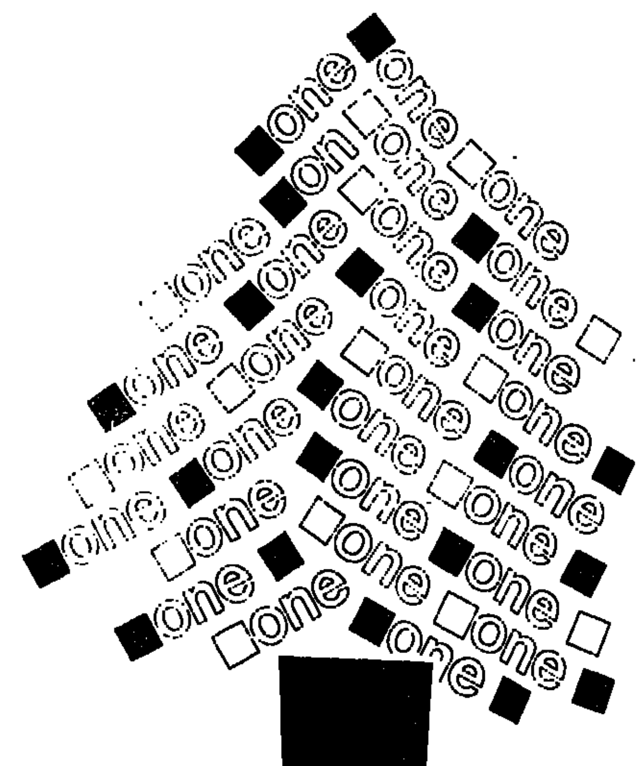

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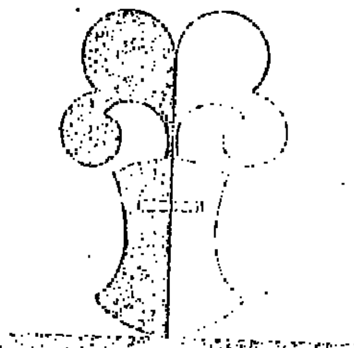

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Our present annual turnover of £12 million is planned to grow to over £30 million within the next five years. We are looking for a **Head of Personnel** to play a vital role in this expansion programme. Our existing professional and technical staff of 500 will increase substantially — and we intend to maintain our staff standards during this period of intensive growth. Appropriate personnel policies and training will be essential in attracting, and then retaining, the right kind of staff.

The Head of Personnel, reporting to the Managing Director, will take responsibility for all personnel, recruitment, training and management development functions. Candidates will probably be graduates with experience of the computer industry. It is essential that they have all round personnel experience, with particular emphasis on the recruitment and development of professional and technical staff.

Age is less important than track record and personal qualities.

Salary will be negotiable into five figures, with bonus, company car and non-contributory pension scheme.

Location will be Central London, covering staff based at Harlow, Greenford, other sites in the UK and on project assignments abroad.

Data Logic

Write or call: Robin Williamson, Data Logic Limited, 29 Marylebone Road, London NW1 Telephone 01-486 7288

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Just post the coupon below. We'll send you an application form – return it with all relevant details about yourself including the names of companies you do not want to join . . . we will abide by your wishes. We'll also compare the information you give us to our clients' personnel needs. Every time the two match up, you'll be shortlisted and our clients will contact you direct.

You won't be pestered by us for dates, times, money or anything else. You'll just be asked by an employer, if you want to talk about a better deal.

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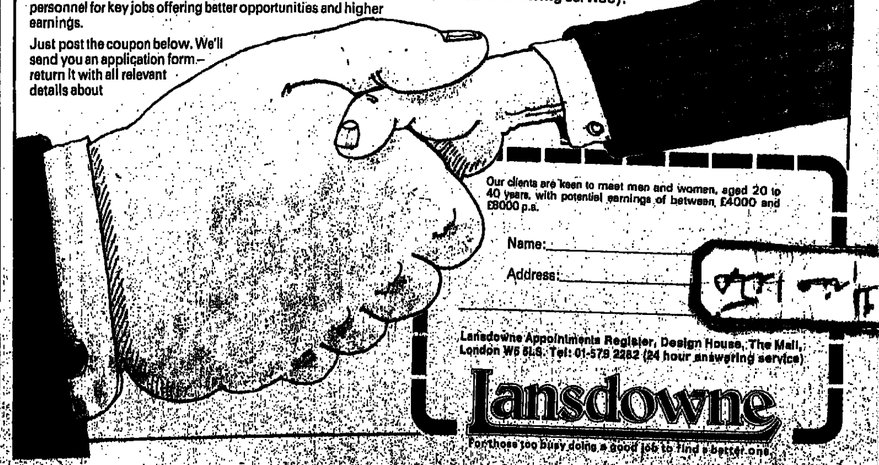

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Computer personnel

VICTORIA
APPOINTMENTS
LIMITED

12th October, 1978

Our Ref: VCH/hr

For the attention of Mr. O. Kelly,
Classified Advertising,
Computer Weekly,
Stathom House,
Talbot Road,
Stretford,
Manchester M32 OEP.

Dear Mr. Kelly,

Further to our advertisement in your Northern Feature of 21st September, 1978, I must write to say that we have received an overwhelming response to this feature, with candidates already having received offers of employment from our Clients.

I do feel this illustrates the point that specialist geographical recruitment features are invaluable and we shall continue to take advantage of the excellent services provided by Computer Weekly.

Yours sincerely,

Val Halliwell

V.C. Halliwell (Miss)
Managing Consultant

24 MOSLEY STREET MANCHESTER 2
Directors: V. C. Halliwell N. Waller

TEL.: 061-236 7319
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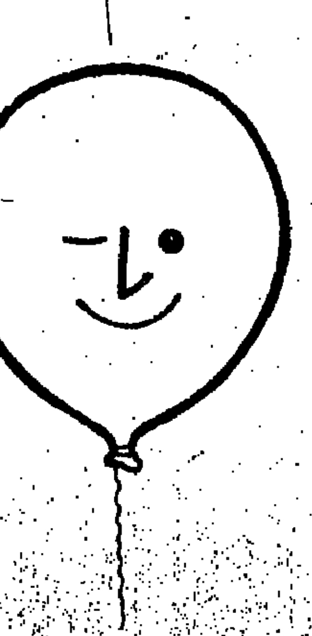

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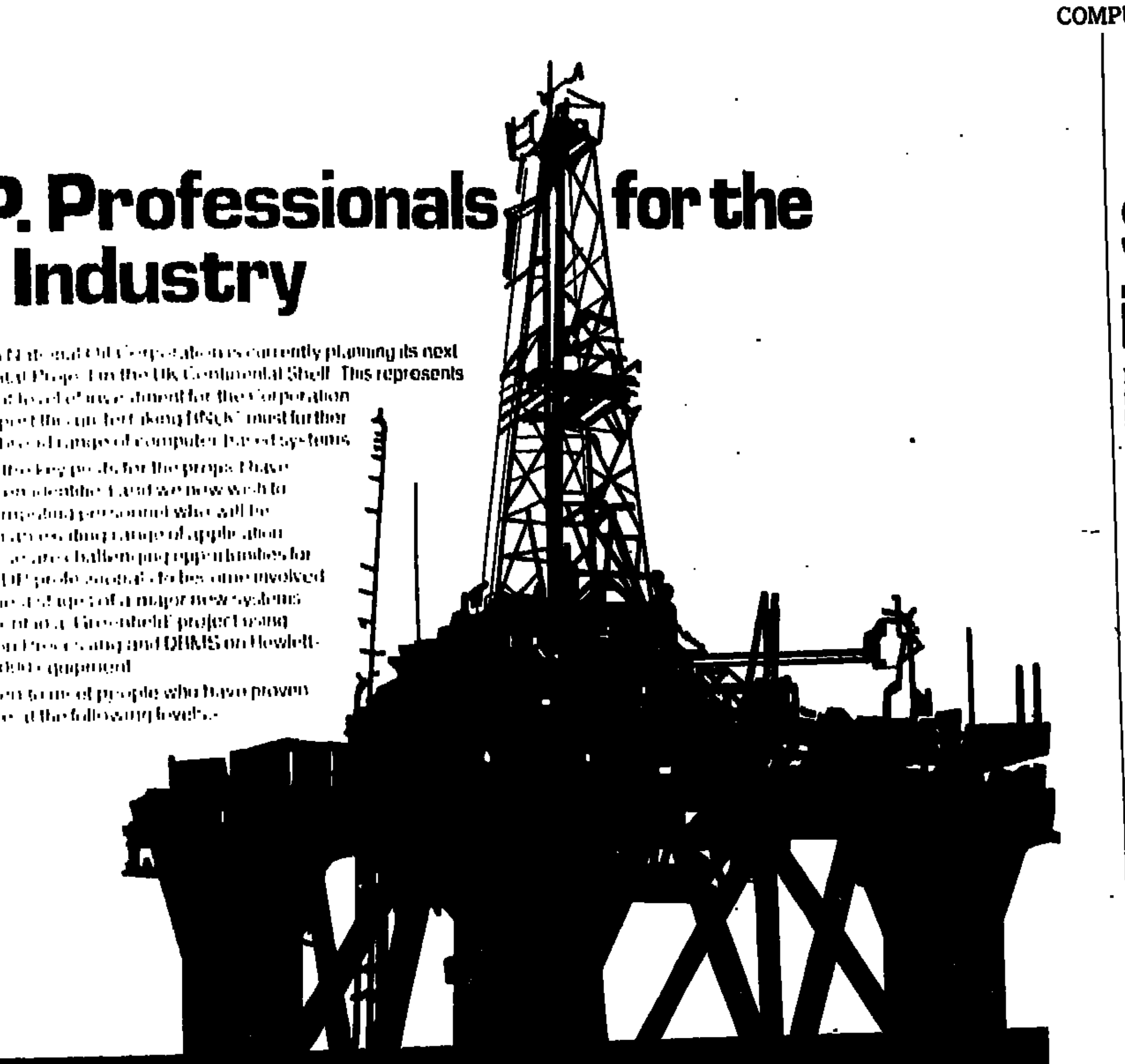

The British National Oil Corporation is currently planning its next major Capital Project on the UK Continental Shelf. This represents [illegible]

We are keen to meet people who have proven experience at the following levels:-

PROJECT LEADERS
SENIOR SYSTEMS ANALYSTS

If you have the requisite experience, are versatile and have the drive and enthusiasm necessary to cope with these demanding opportunities, the Corporation offers great potential for personal career development.

These are all Glasgow based positions. The successful candidates will be offered salaries which fully reflect the importance of the positions and the project. Other benefits include a first class pension scheme and generous relocation expenses, where appropriate.

If you are interested in these opportunities come along and meet our D.P. specialists at one of the following locations:

Tues. 9th January	The Inn on the Park Hotel, Lancaster Terrace, LONDON W2.
Wed. 10th January	The Holiday Inn, Holiday Street, BIRMINGHAM.
Tues. 16th January	The Midland Hotel, Peter Street, MANCHESTER.
Wed. 17th January	The North British Hotel, Princes Street, EDINBURGH

Should you wish further information regarding career prospects within our D.P. function, telephone: The Recruitment Officer, on 041-204 2525 or write to him at: 206 St. Vincent Street, GLASGOW G2 5LJ.

BNOC The British National Oil Corporation

Bristol Waterworks Company

DATA CONTROLLER COMPUTER DEPARTMENT

Applications are invited for the above post. Candidates should have J.C.L. knowledge, preferably I.B.M., O/S or UNIVAC 9000 series and an understanding of J.Proc.

The duties will involve recording and controlling all movements of data into and out of the Computer Room, file control, user liaison and scheduling work through the machine.

Salary will be within the range £4,179-£4,962 (including supplement).

Application forms can be obtained from the Personnel Department (ext. 284) between 8.30 a.m. and 4.30 p.m.

WATER
Bristol Waterworks Company
Bridgwater Road
Bristol BS99 7AU
Tel: Bristol (0272) 665881

FIELD SERVICE ENGINEER

A further vacancy exists for a Field Service Engineer to install, instruct and service microprocessor based intelligent terminals. VDU's, floppies, paper tape punches and readers, etc. Ability to fault find and repair to component level is essential. Willingness to travel throughout the U.K. as required, although sometime will be spent on in-house check out of new equipment, and also repair. Excellent prospects and non-contributory pension scheme and free life insurance. Car provided. Attractive salary.

Write in first instance with v.c. to.

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General Manager
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An entirely new type of job with IPC's Viewdata Development Unit exists for someone with imagination and experience in sorting out and presenting information in a clear and concise manner.

We are exploring the possibilities of Viewdata, a potentially powerful new information and publishing medium and now require someone we can only describe as an "Information Collator". Whoever is appointed will be, or will become, part journalist, part editor, part filing clerk and part advertisement representative — indeed the tasks to be performed will range from the exciting "frontiers-of-technology-pushing" ones, to the mundane routine of meeting half daily deadlines, to the downright frustrating. The future is frankly uncertain — we are an experimental unit — but to a large extent will be what you help to make it. So if you are an enthusiastic optimist with flair and commercial judgement, get in touch and help shape the future.

Contact Peter Fletcher, Viewdata Manager,
IPC Business Press,
79-80 Blackfriars Road, London, SE1
Tel: 01-261 8111, Ext. 211

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PLEASE JUST LISTEN,
YOU DO NOT NEED TO
SPEAK

THE SALES AND MARKETING BIT

Selling a hole in the wall

MY complimentary ticket for Compec had been lurking in the back of my Samsonite for weeks, like the implied threat of an unpaid parking ticket.

The prospect was as potentially traumatic as a blind date. Would the excursion be a mind-bending delight or a boring disaster? Which would swing the balance — the heat of umpteen Megabodies, the frustration of product multiplicity and inadequacy, and the exhaustion of truding around endless clone-like company stands, or the euphoria of microtechnology, the stimulation of new computer applications and the pleasure of meeting old friends?

At last my inherent masochism won the day and my colleagues and I leapt aboard the District Line, bound for Olympia.

I know it's overdoing things, I know it shows a lack of imagination, I know it's a little dishonest, I know it bores my colleagues intensely, but whenever I go to a computer exhibition I always pose as a potential buyer. I wander on to whichever stand takes my fancy and hang around on the off-chance that someone might be interested in selling me something. I like to see if there are any salesmen about, perhaps in the hope of learning some new sales technique or simply to enjoy the pleasure of witnessing an effective salesman at work.

I regret to say I am always disappointed — and that is perhaps the main reason for my jaundiced attitude towards computer exhibitions.

There are lots of things I could moan about in terms of product presentation, but the bad exhibition stands have only to witness the good ones in order to have some idea of how to improve themselves.

What does exasperate me, though, are those salesmen who are so insular in terms of their sales approach and their product that they appear to be incapable of relating to the problems of the potential client.

"Can I help you, sir?"

"Yes, I'd like some information please. I'm interested in the possibility of installing a computer."

"Then you've come to the right place sir. I'd like to tell you about the Microcheap 99. The basic model comes with a 32K processor twin dual-density, double-sided floppies, a 100 chps matrix printer, and a 24 by 80 VDU. There is also included a Basic compiler as well as Cobol and Fortran. The whole lot is available at the incredibly low price of £x", and so on.

I was greeted with this kind of response over and over again.

No one, not one single salesman, asked me about the nature of my problem. For what purpose was I considering the use of computers?

After the show, at the Computer Weekly thrash, I was speaking with a very experienced salesman I have known for years. He related with some surprise how a prospect had visited his stand, and when my friend asked what business he was in, and had been informed that the prospect was from the jewellery trade, he suggested that the prospect might have a stock control problem which could be resolved by the use of computers.

The man was flabbergasted. "You know," said the prospect, "I've been looking at computer equipment at this exhibition all day and you are the first person who appears to have some understanding of what my business problems might be!" — and all my friend said was "Do you have a stock problem?"

Solutions to problems — that is what the end-users of computer systems are seeking, not tools. Okay, much of Compec is in the OEM sector; but computers for business applications were very much in evidence this year and this is where the salesman needs to have a thorough understanding of commercial and industrial applications as well as related software. Specific industry knowledge is a real bonus.

I was discussing this failure of relating the sale to the solution with another knowledgeable senior sales manager, and he summed it up very succinctly. "These guys can't seem to get it into their heads that what they are selling is a hole in the wall, not a bleedin' drill."

TRADER

PRODUCT NOTES

Microfilm storage

A SYSTEM of microfilm storage has been announced by The Shannon of Beckenham, Kent, to accommodate the current estimated 20% growth in the use of microfilm. This year's microfilm market is estimated at £37 million, generating an £800,000 market for storage.

Roll out drawers are made to store microfilm, fiche or cartridge in the company's standard filing cupboards. Other items in the system include cabinets ranging from two to 10 drawers in two widths and loose leaf binders which take five or 10 slotted inserts each holding 34 fiches. Binders cost £12 to £20, and cabinets from £40 up.

The Shannon Ltd (CW), St Margarets Road, Beckenham, Kent.

Puzzle Answer

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  1824
  1824
  1824
  1824 +
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  7296
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E can also be odd, with DEUX 1324 and HUIT 5296.

● Andrew Basden, of the Faculty of Medicine at Southampton University has discovered an alternative set of triplets for the November 9 work-schedule problem. Only one possible set was previously thought to exist. His solution is: 126, 137, 148, 159, 238, 245, 27[illegible], 349, 356, 407, 578, 689.

FACILITIES MANAGEMENT BUSINESS SYSTEMS CONTRACT STAFF SUPPORT RECRUITMENT CONSULTANCY
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Our client is a major electrical and electronic manufacturing group based in the Northern Home Counties, within easy reach of London. The systems and programming area is expanding again in order to keep pace with the ever-increasing growth of this successful and well-established company. Consequently, first career opportunities are being offered to systems analysts and senior programmers who wish to become analysts. There are also two vacancies for programmers who wish to further their technical support experience or move into that specialised area.

SYSTEMS ANALYSTS c. £6,850 p.a.

Applications are invited from analysts, senior programmers and graduates with a sound programming background and the ability to specify programs. This position will involve systems design work.

TECHNICAL SUPPORT PROGRAMMERS c. £6,000 p.a.

Applications are invited from conscientious programmers with a minimum of one year's programming experience using PLAN. A knowledge of COBOL is desirable but not essential.

Successful applicants will have the opportunity to further their technical experience, joining a small, friendly and yet highly professional team involved in a wide range of applications including the development of personnel and nominal ledger systems. This company has a policy whereby promotions are made from within wherever possible. Benefits are excellent and include 5 weeks' holiday after 3 years' service.

Further information and an application form contact Hexagon, Ref PJ 78590

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COMPUTER PERSONNEL CONSULTANTS LICENCE NO. SE(A)62
CW 21/12/78

UNIVERSITY OF LONDON
INSTITUTE OF EDUCATION
PROGRAMMER A
Applications are invited for the above post in the Department of Statistics and Computing.
The successful applicant will be required to maintain and develop program libraries; to help and advise members of staff engaged in educational research, and to assist in running of Computing Courses for postgraduate students.
The Institute has a CDC 200 User Terminal linked to the CDC 6600/7600 computers at the University of London Computer Centre, and to Mistronet. The terminal is at present staffed by a Senior Programmer and an Operator.
Programming experience in the Survey Analysis field or in using any of the University of London Computers would be an advantage.
Salary within the scale £3018-£3857 plus £450 London Allowance.
Further particulars and application forms are obtainable from Personnel, University of London Institute of Education, Bedford Way, London WC1H 0AL, quoting reference P/SC. Closing date for applications is January 12, 1979.

LANCASHIRE COUNTY COUNCIL
DEPARTMENT OF TRANSPORT
NORTH WESTERN ROAD CONSTRUCTION UNIT
STATISTICIAN/PROGRAMMER
AP.4/6 £2833-£4781 plus supplement of £312 per annum
Applications are invited for the above position on secondment from Lancashire County Surveyor's Department to the Headquarters of the North Western Road Construction Unit at Preston.
The successful candidate will probably have a degree or equivalent qualification with a statistical and computing element. Experience of computer programming would be helpful. The post provides great scope for personal initiative and innovation and is primarily concerned with the processing, storage and analysis of traffic data.
Conditions of service are those of the National Joint Council for Local Authorities Administrative, Professional, Technical and Clerical Services.
The normal hours of duty are 36¼ per week and the Unit operates a Flexible Working Hours scheme.
The office accommodation is of a high standard and is located near the central shopping and business area of Preston.
Application forms and further details are available from:—The Director, North Western Road Construction Unit, Crystal House, Birley Street, Preston. Tel. Preston 54701, Ext. 775.
Closing date 30th January, 1979.

CLASSIFIED COPY

JANUARY 4th ISSUE

All classified copy should reach our offices no later than 4 p.m. on Friday, December 29th, 1978 for inclusion in the January 4th issue.

Contract Requirements

IBM PL/1 + ADABAS	–	MIDDX
IBM COBOL OS + IMS	–	BEDS
IBM RPG II	–	SUSSEX
HONEYWELL L66 COBOL	–	LONDON
CORAL 66	–	DORSET/HANTS
ICL SYSTEMS ANALYSTS	–	LONDON
ICL COBOL	–	BEDS

Call Richard or Suzy on 01-491 4706
Knight Software Division
Staff Services Division of BOC Datasolve and a member of Computer Services Association

UNIVERSITY OF HONG KONG
CHAIR OF COMPUTER SCIENCE
Applications are invited from suitably qualified candidates for the Chair of Computer Science which is expected to be established from 1 September 1979. Annual salary (superannuable) will be within the professorial range and not less than HK$140,820 (£1 = HK$9.30 approx). Further particulars and application forms may be obtained from the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, or the Assistant Secretary (Recruitment), University of Hong Kong, Hong Kong. Closing date for applications is 31 January, 1979.

UNIVERSITY OF WARWICK
DATA PROCESSING OFFICER
Applications are invited for the post of Data Processing Officer in the University Central Administration, tenable as soon as possible. Salary will be on the Grade II scale £6,317-£7,754 p.a. (under review). Further particulars may be obtained from the Secretary and Registrar, University of Warwick, Coventry, CV4 7AL, to whom written applications (no forms), naming three referees, should be sent by 15th January, '79. Please quote Ref. No. 20/B/78.

Ascii through the Logic Gate

An epic in 32K words, by Richard Forsyth

Block 24 (Block Of Ages)

Hex is imprisoned in Fort Ranfour while back at Sprocket's Hole Cleo and Hex's former comrades are waking up to his absence.

WHEN they awoke to find Hex gone, they immediately started a search of the whole area. Needless to say, they found nothing.

Zap was scathing. "When he found he couldn't run the show, he just quit. We're better off without someone like that."

"He may have been kidnapped," suggested Cleo.

"What? The Error Squad heavies march down here, abduct him so gently they don't even disturb us, then march off again leaving us fast asleep?"

Put that way, it certainly sounded implausible.

"But if he went of his own free will," asked Lambda, "why didn't he leave any message?"

"That's exactly it. Our limelight-hogging friend cares nothing about our future. He just wants glory. He drummed us into this: but when the going gets hot, he just chickens out," denounced Zap. "I tell you; we are better off without him. He's probably gone back to the System to beg for forgiveness."

"In that case," concluded Lambda, "we're in real peril. We'd better move out of here."

"We will," Zap assured her, "as soon as I've prised the formula for syllogistic acid from that cowboy."

They turned to look at Bill Bootstrap, who had remained impassive throughout, not even complaining about his cramped position tied up to the teletype.

"If you spill the beans without fuss," Zap told him, "it will be easier for all of us."

No reply.

"We haven't got time to be well-mannered about it," Zap warned, ostentatiously polishing the blade of his binary chopper.

"What good is syllogistic acid to you?" demanded Bootstrap gruffly.

Zap outlined his concept to LSD (Large Scale Disintegration). This had a strange effect. The recalcitrant Bootstrap became not just co-operative but positively enthusiastic. He swept aside Zap's plan as insufficiently ambitious, revealing instead his own grandiose design for VLSD (Very Large Scale Disintegration). He had obviously given the matter much thought.

"Syllogistic acid won't be strong enough," he said, "too dialectical. You need a really deadly nerve gas. Think big. Imagine a huge thick dark cloud of jargonic obnoxide drifting unstoppably towards Fort Ranfour."

"Jargonic obnoxide," mused Cleo, "I thought that was laughing gas."

"You might laugh," replied Bootstrap with a leer.

"It's barbaric," protested Lambda with a shudder. "Jargon and all its mind-contracting derivatives have been banned from civilized warfare; it maims the intellect and brings thought processes to a standstill."

But the idea had fired Zap's imagination. He pestered Bootstrap for details. What was its composition? How was it made? Where could they obtain the ingredients? Before long, he and Bootstrap (now unchained) were immersed in technical discussion, like two boys with a chemistry set deciding to make stink bombs.

Production plans were soon well advanced. Cleo was to collect the mushrooms, Zap was to set up the filtration plant and Lambda would repair the cooking stove, all under Bootstrap's direction. And he hadn't even divulged the recipe yet.

Bootstrap described to Cleo in meticulous detail the markings and colouring of the fungus she was to seek (Jargonica Intellectualis Paralyticus) as well as the kind of sheltered nook where it liked to grow, his face never betraying that they had met before.

She didn't like it at all. As she set out with an empty wicker bag for the harvest, she was filled with disquiet. Bootstrap's gaze made her distinctly uncomfortable. Unlike the others, she had first-hand experience of Bootstrap and his ways.

To add to her unease, she was worried about Hex. It was true that he was a loner and hadn't got on particularly well with Zap (nor with her latterly) but it seemed out of character for him to walk out just like that. She felt sure some evil had befallen him.

In this mood, she found she had walked a very long way from Sprocket's Hole before she recalled her task of mushroom picking. Fortunately, she had come to the kind of shady spot which was ideal habitat for them. She quickly identified a big clump and was soon busily filling her bag. She wandered around gathering them up by the handful. By the time her basket was nearly full, she had lost all sense of direction.

She started back downhill. All at once she tripped up. Mushrooms spilt out all over the place. Rising, she noticed with amazement that what she had stumbled across was an old railroad track. It seemed very odd, so remote and on such a steep incline. Quite forgetting her overturned basket, she followed the rails upwards.

Before long the line simply disappeared into the side of the hill. She was standing in front of a disused mineshaft. A wooden sign was nailed to the beam over the entrance way. By scraping off the encrusted dirt and lichen she could read the words "Quicksilver Mining Company".

"This could be the perfect hideout," she thought to herself.

She went straight in, stooping as she walked. As her eyes grew used to the gloom, she could see that the sides of the tunnel were streaked with silvery green. She pressed on, dead level, but getting deeper into the mountain all the time. After two hundred metres she came to a full stop. There was simply no way ahead. Looking back, the daylight was a mere pinprick. All she could hear was her own breathing and the nearby sound of dripping water. She was about to retrace her steps when her skirt caught on something. Reaching down, her fingers clasped a metal rod, set into the rock wall. It seemed to be some sort of lever.

There was a clank of rusty machinery creaking into motion. She was catapulted forward. She had an instant of free fall in total darkness, then she landed with a bump in bright light on a table full of test-tubes and other glassware. A bottle rolled onto the floor and broke.

Is this the lowest she can fall? Not by a long way.

1978 Richard Forsyth, Rair Time-Sharing.

GREETINGS FROM THE NORTH

VAL HALLIWELL & PHIL WALLER OF
VICTORIA APPOINTMENTS LIMITED
Wish all their clients A MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR
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MANCHESTER 2
TEL. 061-236 7319

A Happy Christmas and a Prosperous 1979 to all our Clients and Candidates
Ivor Norton Management Services Ltd
Recruitment Consulting Division

The next recruitment feature is February 1st, 1979, issue which will highlight
SCOTLAND
For further details contact:
Owen Kelly
or Jeff Aiken
on 061-872 4211

KBS
Computer Services
WOULD LIKE TO WISH ALL ITS CLIENTS AND EX-STUDENTS A MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR

OWEN KELLY AND JEFF AIKEN OF COMPUTER WEEKLY (Manchester Office)
wish to take this opportunity to wish their clients a
MERRY CHRISTMAS AND A SUCCESSFUL NEW YEAR

ASCOM Computer Tape

SAFE COMPUTING LIMITED
The Safe way to suit your computing requirements

System Aid shows its breeding ....

WHAT do animal breeding, package holidays and demerara shortcake have in common? The answer, would you believe, is System Aid, the specialists in software for good breeding and the travel industry, which this month enters its 11th year.

Ten years ago, System Aid (Tour Processing) was formed by Nick and Jane Waterhouse. "At the time Nick was working for a merchant bank trying to sort out companies in trouble, while I was involved in systems work," Jane told Computer Weekly at the company's pre-Christmas birthday celebration.

"One of the companies Nick was trying to rescue was involved in making demerara shortcake biscuits, so I suppose we originally went into System Aid as a hedge against the collapse of the shortcake market."

Since then, the company has grown to a turnover of around £250,000 with a staff of 31 and a library of programs worth about £1 million.

Jane Waterhouse said she believed a major factor in System Aid's success had been that it had stuck to a number of specialist applications, building up expertise in those areas rather than going for "growth at any cost."

The main products provided by System Aid are the Tourpars and Tourpack real time reservation and order administration systems for the travel business, and Checkmaster for genetic recording and analysis.

The Australian Kennel Club, one of whose members is pictured right, and the British Friesian Cattle Society of Great Britain and Ireland are among the Checkmaster users and British Airways' Enterprise and Sovereign and the Italian Sate Railways are among System Aid's tour operator clients. System Aid also runs Teltour Ltd, which owns and operates the group's ICL 2903 installation.

NEWS IN BRIEF

Fujitsu puts $250m in R&D

UNDERLINING the determination of the Japanese to succeed in the computer industry, Fujitsu is investing 15% of its $1,700 million turnover in research and development, with the emphasis on software. The figure of $250 million a year compares for example with Burroughs' 1978 expenditure of $140 million, 7% of turnover.

The first of Fujitsu's large-scale M200 mainframes, claimed to be 50% more powerful than IBM's 3033, is set for delivery to a Japanese university in April, and three are under construction

£150 million games

THE European market for electronic games will increase five-fold to reach about £150 million by 1985, according to a Frost and Sullivan market research study. This could represent 50% of the total market, the study says, also suggesting that games with built-in viewing screens could develop into a major factor.

Word is No

TYPISTS on the staff of Bradford City Council have voted overwhelmingly against the introduction of more word processing (CW, December 14). At a mass meeting, voting on the question "Are you in favour of word processing?" was 16 for and 129 against.

Social policies

A ONE-DAY conference looking at the relationship between social policies and industrial innovation is to be held on January 6 at the University of Aston, Birmingham.

Better football results forecasting

By Professor Frank George

THE Boxing Day football league programme will provide a test for Forecast 4, an improved version of the successful football prediction program developed by myself and colleague Dr Roger Hartley. And I shall be appearing on Thames Television on December 22 to reveal the predictions (see front page).

Forecast 4 contains some new features compared to the previous Forecast 3, as well as being tuned to take account of the latest accumulation of results.

Recently I wrote about Forecast 3 (CW, November 16) and made clear that there were three phases involved in the process.

The first is the use of *form*, which is represented by league position and the last two results of each club in a fixture. The second is the *decision* made by the individual as to whether to add further tests such as the history of the games between the two clubs, a goal difference test, and so on. This is necessary to avoid everyone having the same forecast.

The third point is the *sort* itself, whereby the forecast score draws (90 per cent expected) are mixed with 10 per cent unexpected to introduce the necessary random element.

The following is a possible mode of approach to the Boxing Day programme.

The fixture list for Boxing Day starts with Arsenal v West Bromwich Albion. Let us look at this first match and the league positions as on December 9 (although these will obviously have changed by Boxing Day). Arsenal are fourth (23 points from 18 matches) and West Bromwich Albion third (25 points from 17 matches). This is a borderline draw (we score 2 points for a draw).

We now look at the last two results (up to December 9), and these are for Arsenal: home win last game but one and away draw last game. For West Bromwich Albion it was a home win, and the last fixture before that was actually postponed, so we take the one before that, which was an away draw. Now we look up the Diad and Triad tables in which for the home team who played away last game, the forecast is home win (2 points). The Triad test forecasts home win or draw (1 point each).

We now look at the Quadrad test, which involves the last three home matches for Arsenal and the last three away matches for West Bromwich. Again taking the present state of affairs, we have Arsenal with WDW as their last three home results and West Bromwich the DWW as the last three away results. This gives ½ point for a draw from Arsenal and nothing from West Bromwich.

The upshot is that a marginal vote for a draw is indicated. If we move to the individual phase, we find previous results of this game are 1-2 last year, and before that West Bromwich were in Division II, so no fixtures took place between them. The game is not a local Derby, so there is no relevance there.

The last point is the "quality" of their previous results: Arsenal drawing 0-0 at Norwich and West Bromwich's 2-0 home win against Middlesbrough are about equivalent. So we could argue that this was an *expected draw* and we would place it in a list of such draws, where a priority is attached to each. Whether it is one we forecast or not in our *sort* depends entirely upon the other forecasts.

● The Forecast Club is run by Topaz Books, High Street, Great Missenden, Bucks and members will now be placed automatically on Forecast-4.

Prime minis for UK net

IT now appears that the "British content" in the planned public Packet-Switched Service will be confined to the installation by Plessey. The Post Office is currently negotiating with Plessey for installation of the switching equipment (CW, November 30), and the Plessey bid includes Prime 350 minicomputers as well as Telenet Processors, which are modular units based on MOS Technology 6502A microprocessors.

The initial switches in Telenet's US pack-switched network were all based on the Prime minis, but newer ones have incorporated the specially-designed Telenet processors.

ICL pay agreement

LOWER paid workers in ICL will benefit from an agreement reached last week between the management and unions in the company on a new productivity scheme (CW, November 30).

"The offer by ICL was an improvement on that previously tabled," said an ICL spokesman, "and it provides for higher quarterly bonus payments to the lower paid members of the workforce."

The agreement has yet to be accepted totally by union membership.

Texas into personal business

THE long-awaited move by Texas Instruments into the personal computer business came a little nearer this week with the news that the company is to discontinue production of its SR60 desk-top calculator.

This has led to industry speculation that Texas Instruments is now putting all its manufacturing resources into the production of its range of three personal computer systems (CW, August 24).

Overtime ban by ops hits building society

TERMINAL look-up facilities at over half of Leicester Building Society's branches are being halted on Saturdays due to an overtime ban by computer operations staff at its head office/computer centre in Oadby.

The ban centres around a recognition dispute in which about 12 operators are seeking representation by the white collar union APEX after leaving the society's 1,000-strong staff association earlier this year.

"We have suggested that the society should renegotiate its agreement with the staff association," said Gerry Veatt, area organiser for APEX. "The computer staff have said that they feel the association cannot represent them fully and that it does not have the resources to obtain detail of wage levels of computer staff elsewhere — which APEX can."

Basil Eckhard, general manager for the society, said, "The society is unable to meet the request by computer staff as, it already has a legally binding agreement with the staff association. Despite the overtime ban affecting our account checking facilities on Saturday, we are managing to bypass the problem by using the same procedures as we had before the terminals were installed."

Leicester Building Society is currently completing the installation of terminals at all of its 170 branch offices in the UK.

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